DEVELOPING NONCOGNITIVE FACTORS THROUGH OUTDOOR ADVENTURE EDUCATION: EXPERIENCES THAT COMPLEMENT CLASSROOM LEARNING

by

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ABSTRACT

College readiness requires a broad set of competences that include learning strategies, academic content knowledge, skills, and information needed to navigate the pathway to and through college, and noncognitive factors related to self-regulation. There is increased interest among researchers, educators, and policymakers in the role noncognitive factors play in college readiness. Noncognitive factors include the skills, beliefs, attitudes, and behaviors that contribute to student achievement but cannot be measured by traditional academic assessments. Many noncognitive factors are developed during out-of-school-time (OST) activities that may include sports, clubs, the arts, or volunteering. Outdoor adventure education (OAE) is one type of OST experience that is linked to the positive development of key noncognitive factors necessary for college readiness like self-efficacy, self-confidence, social belonging, perseverance, and the ability to perform under difficult circumstances. The following research examined two distinct college preparatory environments that use OAE to complement their curriculum and programming.

The first study involved an independent all-girls school in Los Angeles that sends all its students on weeklong expeditions in 7th-, 9th-, and 11th-grade. This qualitative study found outcomes in three areas: social connectedness, self-efficacy in leadership, and a recalibrated sense of self. Interviews with students and faculty showed how a shared

application environment—the school—aided the retention of outcomes, allowing relationships to continue beyond the course and providing a supportive context where students could continue practice leadership competencies.

The second and third studies examined the use of OAE experiences within a larger college access program that works with students from low socioeconomic backgrounds. Using a mixed methods approach, these two related studies found increases in self-efficacy for dealing with challenge and using help-seeking behavior following the OAE experience but a regression to precourse levels months later. The study revealed the importance of context and continuity and the need to study the development of noncognitive factors over a longer time frame.

Findings in this dissertation contribute to conversations about the importance of OST experiences like OAE and their potential contribution to college readiness. Implications are presented for programmers, educators, and policy-makers.

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CHAPTER 1

INTRODUCTION

Research in education recently shifted its attention toward the factors other than intelligence that support student achievement. This comes at a time when there is increasing pressure on policymakers and educators to produce evidence related to learning and academic performance. In the past decade, the emphasis has been on standardized testing, standardized curricula, and standardized pedagogical approaches. However, there is a renewed interest in the attitudes, skills, and behaviors of students that support learning. Scholars, educators, and policy makers refer to this array of intrapersonal and interpersonal assets as *noncognitive factors* (Farrington et al., 2012; Heckman & Rubinstein, 2001). These factors relate directly to motivation and academic performance and include student beliefs about personal competence, beliefs about school and belonging, and habits of self-control (Dweck, Walton, & Cohen, 2011). Research has shown that noncognitive factors can be just as predictive of future academic and personal success as intelligence (Duckworth, Peterson, Matthews, & Kelly, 2007; Heckman & Kautz, 2013; Kautz & Zanoni, 2014). The promise of noncognitive factors rests in their relative malleability in comparison to intelligence (Farrington et al., 2012). Educators are now seeking additional research to understand what types of programmatic interventions may contribute to the development of important noncognitive factors

. Ultimately, noncognitive factors play an important role in college readiness. College readiness can be defined as "a set of skills, behaviors, attitudes, and knowledge both cognitive and noncognitive, possessed by individual students that shape their likelihood of attaining a college degree" (Nagaoka et al., 2013, p. 50). Many noncognitive factors related to college readiness are cultivated during out-of-school-time (OST) activities. Extracurricular activities like sports, clubs, music, and volunteering allow students to practice social skills, develop competence, and build a positive personal self-concept while receiving feedback and guidance from peers and adults in a nonacademic environment (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Outdoor adventure education (OAE) is a type of OST experience that is linked to the development of key noncognitive factors like self-efficacy, self-confidence, perseverance, and the ability to perform under difficult circumstances (Hattie, 2009; Sibthorp, Furman, Paisley, & Gookin, 2008). However, few studies have specifically looked at how schools and college access programs can use OAE to augment a larger curriculum that promotes college readiness.

OAE provides a unique context for learning and personal development. Key elements include, "(a) the planned use of adventuresome activities, (b) a real-life activity or learning context, (c) goal-directed challenges that must be solved individually and in groups, (d) an outdoor or wilderness setting, (e) cooperative small group living and activity participation, (f) trained leaders/facilitators, and (g) specific, pre-planned educational or developmental goals" (Baldwin, Persing, & Magnuson, 2004, p. 168). Activities may include backpacking, sea kayaking, rock climbing, or other adventure activities and incorporate learning objectives like leadership, teamwork, and personal

development (Ewert & Sibthorp, 2014). The active and experiential qualities of OAE and variables related to group dynamics, personal challenge, and a relatively unpredictable environment make these experiences nearly ideal for the development of noncognitive skills, from self-efficacy and self-confidence to improved communication, collaboration, and coping skills as evidenced through research (e.g., Ewert & McAvoy, 2000; Goldenberg, McAvoy, & Klenosky, 2005; Hattie, Marsh, Neill, & Richards, 1997; Widmer & Taniguchi, 2014). There is emerging evidence that the nontechnical, noncognitive outcomes of participation in OAE transfer well to other settings (Schumann, Sibthorp, Paisley, & Gookin, 2009; Sibthorp et al., 2008). That said, there remains a need for more evidence of the sustained value of OAE participation and leading scholars in the field have called for longitudinal studies and more nuanced approaches to research on learning transfer (e.g., Brown, 2010; Ewert & Sibthorp, 2014).

For years, studying the lasting impact of OAE participation has been a challenge due to the character of most of the established programs that include Outward Bound and the National Outdoor Leadership School (NOLS). The vast majority of courses offered by these organizations involve students that come together for the specific purpose of participating in the experience. After spending weeks or months in remote environments learning new skills, enduring challenges, making important social connections, and sharing peak experiences, students return to their respective homes where there may be few opportunities to reinforce lessons or even reminisce. Intact groups of students (e.g., students from the same school, program, workplace) have a better opportunity to reinforce group-related outcomes (Bell, Gass, Nafziger, & Starbuck, 2014; Sibthorp & Jostad, 2014). A supportive shared application environment can encourage the use of new

skills, and the reinforcement and remediation of lessons (Burke & Hutchins, 2007). Perhaps most importantly, participants have the opportunity to continue relationships that developed on course. Studies have looked at the use of OAE for team building in corporate work teams (Gass & Priest, 2006) and college orientation programs (e.g., Bell et al., 2014; Gass, Garvey, & Sugerman, 2003) and found that keeping the social group intact from setting to setting contributed to lessons and personal connections lasting beyond the end of the outdoor experience. This research highlights the potential impact of using OAE within the context of a larger college preparatory program to create lasting impacts that support student success, whether that college preparatory environment is a school or a college access program.

Ultimately, the purpose of using OAE within a college preparatory environment is to positively influence the developmental trajectory of students. OAE is just one of many potential high quality experiences, or *developmental cascades*, that can alter students' beliefs about themselves, their potential, and their self-agency to act (Masten & Cicchetti, 2010). A systems perspective recognizes the many influences on student development and life course. Masten and Cicchetti (2010) define developmental cascades as:

> the cumulative consequences for development of the many interactions and transactions occurring in developing systems that result in spreading effects across levels, among domains at the same level, and across different systems or generations. Theoretically, these effects may be direct and unidirectional, direct and bidirectional, or indirect through various pathways, but the consequences are not transient: developmental cascades alter the course of development (p. 491).

Therefore, this dissertation is divided into three articles presented in Chapters 2, 3, and 4 that examine the role of OAE experiences set within a larger college preparatory environment in the development of noncognitive factors. To provide a broad understanding of the relationship between OAE experiences and noncognitive factors,

research in this dissertation looks at two very different programs and student populations. One program resides within the curriculum of an independent all-girls school with considerable financial resources and a majority of students who come from affluent families. The other program is a five-year college access program that works with high achieving urban youth from low socioeconomic backgrounds.

Chapter 2 looks at a private all-girls school in Los Angeles that sends all of its 7th-, 9th-, and 11th-grade students on week-long backpacking trips to practice leadership, challenge themselves physically and mentally, and build school community. To deliver these outcomes the school partners with the National Outdoor Leadership School (NOLS), a recognized leader in outdoor skills training and leadership education. The article, "Complementing Classroom Learning through Outdoor Adventure Education: Out-of-School-Time Experiences that Make a Real Difference," was a qualitative study conducted in the fall of 2014. Using a grounded theory approach to data collection and analysis (Chamaz, 2014), the study involved semistructured interviews with 31 students and 8 faculty from the school. The study looked at outcomes from the OAE experiences with specific interest in how outcomes transferred back to the school environment.

The OAE experiences proved to be an important contributor to both school curriculum and school culture. Students reported outcomes in three areas: social connectedness, self-efficacy in leadership, and a recalibrated sense of self. The weeklong wilderness expeditions allowed students to bond with their peers, deepening existing relationships, and encouraging new connections. Through shared challenges and peak experiences, the OAE courses helped create a sense of belonging among students and a shared school culture that embraces challenge. Students were also able to practice

leadership and communication in a context that offers immediate feedback. Interviewees noted how they learned and practiced multiple leadership styles and worked through conflict, building self-efficacy in several areas. The OAE experience also allowed students to reflect on their values and their own capabilities, leading to reevaluations of self-concept or sense of self. While these results are consistent with other OAE research (see Hattie et al., 1997), findings underscored the importance of a shared transfer environment. Back at school, students were able to use shared language learned on the expeditions, practice leadership skills in group projects and other school activities, and continue relationships from the course. In addition, school faculty had the opportunity to reinforce lessons and celebrate shared success. While all students did not necessarily look forward to a week of "roughing it,"' nearly all students acknowledged a sense of personal and group accomplishment. In sum, the experiences lead to greater self-efficacy in leadership and dealing with challenge, a change in perspective about personal potential, and a sense of school belonging—all noncognitive factors that contribute to student motivation and persistence.

Chapter 3 is entitled "Bridging the Opportunity Gap: College Access Programs and Outdoor Adventure Education." This study sought to understand how OAE experiences relate to the development of particular noncognitive factors associated with college readiness. In the United States, students from low socioeconomic backgrounds are up to 50% less likely to participate in OST enrichment activities (e.g., sports, clubs, arts activities, volunteering) than students from with high socioeconomic status (SES; Putnam, Frederick, & Snellman, 2012). This presents a problem with rippling effects. OST activities, including OAE, offer abundant opportunities for students to develop the

beliefs, mindsets, and sense of belonging necessary for difficult transitions. Unfortunately, those without the resources to access OAE opportunities may be missing out on these benefits. Chapter 3 looked at a college access program attempting to bridge this "opportunity gap" by offering a series of experiences that includes OAE. The article in this chapter presents findings from the first part of a larger longitudinal study. Participants included students involved in C5 Youth Programs, a five-year program designed to improve college readiness. Following 9th-grade, almost all C5 students go on a weeklong OAE expedition. This study focused on changes to noncognitive factors from pre to postcourse. Data were collected during the summer of 2015 from 165 students spread across 20 separate courses led by NOLS. The study employed a mixed methods approach to examine how OAE participation relates to changes in noncognitive factors from pre to postcourse. Students completed the Noncognitive Factors Measurement Instrument (NCFMI) that measured student beliefs related to self-efficacy for dealing with challenge, self-efficacy for using help-seeking behavior, mindsets toward leadership development and emotional control, and sense of belonging—particular noncognitive factors that align with OAE outcomes (Hattie, 2009; Sibthorp et al., 2008). In addition, the study used semistructured interviews (n = 27) to understand any changes, or lack of change, to student beliefs. It found that OAE experience—with its inherent challenges and small group context—supported student self-efficacy beliefs for dealing with challenge and reaching out to others. Qualitative interviews revealed that the experience also helped improve and reinforce student relationships and overall connection to the college access program.

Chapter 4, titled "Does Outdoor Adventure Education Support College

Readiness? Lasting Impacts on Noncognitive Factors," presents a findings from a follow-up study conducted several months after the end of the C5 OAE experience. It sought to gauge how time and change in application context—C5 to school—related to any further changes in noncognitive factors. The study used a similar mixed methods approach to the study in Chapter 3 with students (n = 102) completing the NCFMI and a subset of students (n = 26) participating in interviews.

Findings revealed that postcourse gains in self-efficacy for dealing with challenge and self-efficacy for using help seeking behavior regress to precourse levels in the months following the experience. Interviews revealed that while the OAE experience provided benchmark challenges that allowed students to understand the importance of perseverance and a positive attitude, students evaluated their self-efficacy beliefs based on context. On course, the C5 community provided a supportive social structure that helped students push through adversity and encouraged both cooperation and help-seeking behavior. However many students returned to home and school environments where the supportive social structure was not as strong. Although C5 serves as a surrogate academic community during the summer and during monthly programming throughout the year, benefits of that community are mitigated during the academic year as students disperse to different schools. The chapter ends with a discussion of the importance of continuity and context for student beliefs.

This dissertation concludes with a summary of findings in Chapter 5. It presents the opportunities that OAE offers in terms of providing a powerful context for developing noncognitive factors associated with student success and college readiness. The chapter also discusses the challenges associated with evaluating the long-term impact of OAE

participation. Using OAE experiences as part of a college preparatory environment like a school or a college access program can support the retention of desired OAE outcomes but these studies underscore the importance of regular reinforcement and a shared application environment.

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CHAPTER 2

COMPLEMENTING CLASSROOM LEARNING THROUGH OUTDOOR ADVENTURE EDUCATION: OUT-OF-SCHOOL-TIME EXPERIENCES THAT MAKE A REAL DIFFERENCE

Abstract

Recent research underscores the importance of the skills, beliefs, and behaviors that support student achievement in the classroom and beyond (Farrington et al., 2012). This set of intrapersonal and interpersonal assets (e.g., perseverance, social skills, efficacy beliefs, mindsets) are often referred to as *noncognitive factors,* as they are not measured directly by traditional academic assessments (Dweck et al., 2011). Outdoor adventure education (OAE) is well-positioned to deliver these desired outcomes—boosting self-confidence, self-efficacy, and social skills while developing leadership and communication competencies (Hattie, 2009; Sibthorp, Furman, Paisley, & Gookin, 2008). Therefore, the primary aim of this study was to better understand the form, function, and delivery of an effective OAE program/school partnership targeting factors that support student success. Findings explain how shared OAE experiences among adolescent girls attending the same school contribute to greater social connectedness, self-efficacy in leadership competencies, and a recalibrated sense of self.

Introduction

"In our pursuit of educational reform, something essential has been missing: the psychology of the student." (Dweck, Walton, & Cohen, 2011, p. 2)

"The most important attitude that can be formed is that of desire to go on learning." (Dewey, 1938/1997, p. 32)

It is hard not to agree with Carol Dweck and John Dewey on these two points, published 73 years apart. Student beliefs about themselves and their motivational dispositions toward learning matter. Yet the importance of student psychology is often lost in discussions of education, particularly in debates related to the education gap between students from low socioeconomic backgrounds and students from more affluent households. In recent years, research has brought attention back to intrapersonal and interpersonal factors that support student success. Angela Duckworth made the case that *grit*—the ability and desire to follow through on long-term goals—was a stronger predictor of long-term success than IQ (Duckworth, Peterson, Matthews, & Kelly, 2007). Dweck articulated how growth mindsets toward intelligence and learning contribute to student motivation and perseverance (Dweck, 2006). Related research highlights the importance of social belonging, self-confidence, self-efficacy, and other factors on student attitudes toward school, effort, and, ultimately, academic achievement (Dweck et al., 2011; Snipes, Fancsali, & Stoker, 2012; Yeager & Walton, 2011). Collectively, these psychological factors and related behaviors are sometimes referred to as *noncognitive skills* as they cannot be measured directly by traditional academic assessments (Heckman & Rubinstein, 2001; Shechtman et al., 2013). These factors are especially important during adolescence, when student motivation is vulnerable to increased academic expectations and shifting social dynamics (Blackwell, Trzesniewski, & Dweck, 2007;

Lansford, Killeya-Jones, Miller, & Costanzo, 2009). Educators and policy makers are now looking for innovative ways to cultivate student mindsets, beliefs, and behaviors as these are relatively malleable compared to cognitive ability (Farrington et al., 2012).

So how can schools support the development of factors that foster student motivation and classroom learning? There is renewed interest in understanding how out-of-school-time (OST) activities, particularly those associated with school, can support student success (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Farb & Matjasko, 2012; Putnam, Frederick, & Snellman, 2012). School-related OST experiences include sports, clubs, arts programs, and volunteer service. Recent studies have found intriguing connections between school-related OST participation and the development of particular noncognitive factors that support classroom learning. Such outcomes include stronger social connections with peers, a greater identification with school, and positive social behaviors (Durlak, Weissberg, & Pachan, 2010; Farb & Matjasko, 2012). In addition, Putnam (2012) notes that participation in school-related OST activities helps students develop leadership and communication skills and establish a strong work ethic while cultivating self-confidence, self-efficacy, and educational aspirations. Simply put, well-designed OST experiences can shape student beliefs of ability, potential, and belonging in ways that influence perseverance and overall engagement with learning.

One type of OST experience that is recognized for its impact on intrapersonal and interpersonal outcomes is outdoor adventure education (OAE). OAE uses remote outdoor environments, activities like backpacking and sea kayaking, and other curricular components (e.g., leadership development) to foster skill development and personal growth (Priest & Gass, 2005). Research on OAE regularly reports outcomes that align

with noncognitive factors: improved self-confidence, self-efficacy, social belonging, and perseverance (Hattie, Marsh, Neill, & Richards, 1997; Sibthorp, Furman, Paisley, & Gookin, 2008). However, most studies looked at standalone programs and there is little research focused on how schools can leverage OAE experiences to support traditional classroom learning for adolescent students.

This study sought to gain insight on the overall effectiveness and value of OAE as an OST option for schools interested in promoting the development of noncognitive factors in adolescent students. It was of particular interest to understand how shared OAE experiences affect student beliefs and relationships, both short and long term.

Out-of-School-Time, OAE, and Potential Contributions to Classroom Learning

OST activities are an important component to adolescent student development. Meta-analyses synthesizing research on sports, clubs, arts activities, and other school-related OST programs have found positive effects on student attitudes, beliefs of competence, self-regulation, and social outcomes (Durlak et al., 2010; Farb & Matjasko, 2012; Larson, 2011). Outcomes include positive attitudes toward school and learning, a stronger work ethic, increased school attendance, sense of belonging, and healthy relationships with peers and adults at school (Pittman, Irby, Yohalem, & Wilson-Ahlstrom, 2003; Putnam et al., 2012). These outcomes demonstrate increased engagement in learning, which is associated with long-term academic success (Pittman et al., 2003).

OAE is one type of OST experience that is especially effective in fostering these key noncognitive factors. Broadly, noncognitive factors can be described as the

"attributes, dispositions, social skills, attitudes, and intrapersonal resources, independent of intellectual ability…that high-achieving individuals draw upon to accomplish success" (Shechtman et al., 2013, p. 1). Set within an outdoor educational context that uses adventure activities like backpacking and sea kayaking as a medium for teaching a range of technical, interpersonal, and intrapersonal skills, OAE provides powerful opportunities for learning and development. A meta-analysis of 96 studies found that OAE programs had significant effects on independence, general self-concept, confidence, self-awareness, self-efficacy, and social outcomes (Hattie et al., 1997). Research and summative literature published after this meta-analysis also found clear connections between OAE participation and increased self-efficacy, self-confidence, self-regulation, and problem solving skills as well as group-related outcomes like social cohesion, communication, and team functioning (e.g., Collins, Paisley, Sibthorp, & Gookin, 2012; Ewert & McAvoy, 2000; Propst & Koesler, 1998; Sibthorp & Jostad, 2014; Sibthorp, 2003; Sibthorp et al., 2015).

The inherent qualities of OAE experiences provide a unique context for supporting a number of outcomes of interest to schools. OAE programs take advantage of remoteness, a small community of learners, and opportunities for hands-on learning to create an environment where students "learn about their strengths and weaknesses, discover new passions, re-evaluate personal values, gain new skills, and make powerful connections with others" (Sibthorp & Richmond, 2016, p. 214). Research has noted how OAE's novel natural surroundings, physical and mental challenges, and opportunities to receive immediate feedback from peers, trained instructors, and the environment support outcomes related to leadership, teamwork, self-confidence, as well as self-efficacy for

functioning effectively under difficult circumstances (Hattie, 2009; Sibthorp et al., 2008; Sibthorp, Furman, Paisley, Gookin, & Schumann, 2011).

Given what is known about the benefits of OAE, there is surprisingly little research on how schools can use outdoor adventure experiences to complement classroom learning. This is especially true within the United States and Europe where schools infrequently integrate OAE into curriculum (Ewert & Sibthorp, 2014). The bulk of OAE research looks at standalone programs offered by organizations like Outward Bound and the National Outdoor Leadership School, where students come together from different places for the specific purpose of participating in a course (Hattie, 2009). Research on school groups using OAE has mostly looked at college orientation programs and their impact on social adjustment and student retention (e.g., Bell, Gass, Nafziger, & Starbuck, 2014). A recent review of OAE literature identified that there is a clear need for more research on how OAE experiences may benefit a group of students who return to a common application setting like school (Sibthorp & Jostad, 2014). Clearly, the potential of OAE as a complement to classroom learning has not yet been fully explored.

Recognizing that not all learning and development occurs in the classroom, educators and policymakers are calling for more intentional connections between OST activities and in-school learning (Pellegrino & Hilton, 2012; Pittman et al., 2003). Schools have had a difficult time fully integrating OST activities, including OAE, into school curriculum since outcomes indirectly contribute to academic achievement (Pittman et al., 2003; Yohalem, Granger, & Pittman, 2009). However, this could change with continued research. Therefore, this study sought to address the following research questions (RQ):

RQ1: How can school-related OAE experiences contribute to the development of noncognitive factors in adolescent students?

RQ2: How can outcomes from school-related OAE experiences contribute to school success, both individually and collectively?

RQ3: What are the key mechanisms for the development and retention of noncognitive factors?

Study Purposes and Objectives

With these research questions in mind, the purpose of this study was to address the limited understanding of how OST activities like OAE can be used by schools to foster noncognitive factors with an intact group of adolescent students. It examines both the proximal and distal effects of OAE participation and attempts to understand how these experiences affect student beliefs, student relationships, and school culture.

Methods

This study employed a grounded theory approach to understand and explain how a shared OAE experience affects a group of students from the same school. Data collection involved semistructured interviews with students and faculty. This approach allowed for a deep exploration of how one particular school uses multiple OAE experiences to supplement and support classroom learning.

Setting and Participants

Participants for this study included adolescent female students and adult faculty from an independent all-girls school located in Los Angeles. Students and faculty participated in a custom multinight OAE experience designed and run by the National

Outdoor Leadership School (NOLS). The school worked with NOLS to create a series of custom courses for students. The resulting program sends nearly all students on six-day and five-night expeditions in 7th-, 9th-, and 11th-grade to build community, practice leadership, and get students out of their comfort zones.[1] By the end of their time at the school, students participate in three expeditions that take place in Utah (7th-grade), Arizona (9th) and Washington (11th). Each grade cohort has between 50 and 90 students who travel in small groups of 8-12 students, 2-3 NOLS instructors, and a faculty member from the school. Annual enrollment for the entire school is approximately 480 students with 39% of students representing minority populations and 24% of students receiving full or partial financial aid.

Sample

The author and the school's OAE coordinator recruited a purposive sample to capture a wide range of experiences and opinions. Following the recommendations of Creswell (2008) and Chamaz (2014), a target of ten interviews was established for each student cohort that recently completed their 7th-, 9th-or 11th-grade backpacking trips. In addition, the study sought to interview 10 faculty members who served as chaperones for these experiences. The final sample included nine 8th-grade students, eleven 10th-grade students, seven 11th-graders and four 12th--grade students. Students ranged in age from 13 to 18 years old. The faculty participants included two male teachers, four female teachers, and two female administrators. All students who were interviewed participated in a backpacking expedition within the previous twelve months. The composition of the

[1] In the United States, students in 7th-grade are generally 12-13 years old, 9th-grade students are 14-15 years old, 11th-grade students are 16-17 years old and 12th-grade students are 17-18 years old.

student interviewees was similar to that of the demographic makeup of the school, with 37.5% of the interviewees representing minority populations and 25% receiving financial assistance.

Procedures

Grounded theory methods offer "systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct a theory 'grounded' in their data" (Chamaz, 2014, p.1). Data collection involved semistructured interviews with open-ended questions designed to gain a deeper understanding of experiences and related outcomes. This qualitative approach is useful when investigating meaning and relationships among variables as it allows researchers to identify themes from the responses provided by participants (Marshall & Rossman, 2006; Miles, Huberman, & Saldana, 2014). Interviews lasted between 20 and 45 min each. Questions sought to gain an insight into the experience itself, highlights and challenges, salient lessons, and impacts on peer and student-faculty relationships. Representative questions included "What were some highlights from your trip?", "What strategies did you use to overcome challenges?" and "How have your school-related OAE experiences affected your life at school and in your personal life?" Interviews sought to capture a broad range of responses, with the goal of saturation sampling where additional interviews yield little or no new information (Creswell, 2008; Miles et al., 2014).

Interviews took place over a ten-day period during the fall semester of 2014. All student interviews were conducted in person on the school campus in Los Angeles. Some faculty interviews were conducted by phone three days prior to the campus visit due to scheduling availability. All interviewees completed necessary consent and assent forms

and interviews were recorded to ensure accuracy.

Data Analysis

Upon completion of the interviews, approximately 25 hr of audio were transcribed. Transcriptions were then examined through three stages of analysis that included open, focused, and axial coding (Miles et al., 2014; Saldana, 2013) with the aid of HyperResearch software (ResearchWare, 2013). This process examines the transcript data, recognizes and groups salient themes, and identifies connections among themes.

Findings

Participants discussed their experiences on one or more school-related OAE expeditions, sharing perspectives on the program's purposes, outcomes, and overall effectiveness. Faculty talked about their personal experiences as well as their observations of how the trips impact student development and relationships with peers and faculty. Student interviewees shared highlights and challenges related to one or more OAE experiences and explained how the experiences affected friendships and their personal view of themselves. Students also discussed how the backpacking experiences served as a chance to practice leadership as opposed to mostly talking about leadership within the classroom environment. Finally, all of the interviewees talked about how relationships, lessons, and the overall shared experience contributed to school culture and classroom learning. Analysis of these interviews led to the development of a theory of change describing how shared school-related OAE experiences can support student learning. This model is presented in Figure 2.1.

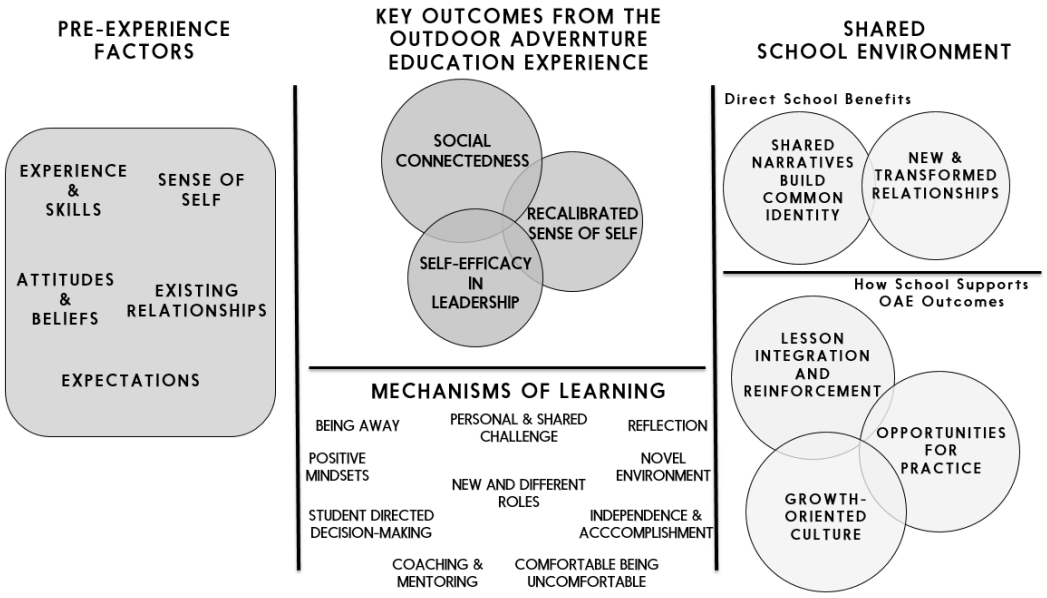

Figure 2.1: *Using school-related OAE experiences to support student learning*

Integrating OAE Into School Curriculum to Support Student Development

Figure 2.1 includes major themes from the interviews to summarize how particular mechanisms of learning help bring about outcomes from the OAE experience in three areas: a) social connectedness, b) self-efficacy in leadership competencies, and c) a recalibrated sense of self. These outcomes are interrelated as reflected in their positioning in the diagram, and their relative size indicates magnitude with social connectedness being the most reported outcome. The left side of the model recognizes that these outcomes are also influenced by preexperience factors that include the student experience and skills, student attitudes and beliefs about themselves, individual sense of self, student expectations for the experience, and existing student relationships. The right side of the model highlights the impact these OAE experiences have on the school and

the important role the school plays in supporting and furthering outcomes from one or multiple OAE experiences. Direct benefits to the school include transformed relationships that foster a positive learning environment and the shared narratives of challenge, peak experiences, and accomplishment that contribute to a common school identity. Figure 2.1 represents the interrelatedness of these benefits. Similarly, the school helps ensure that positive outcomes are not lost postexperience. Students have opportunities to practice leadership skills within a school context and faculty can reinforce lessons by integrating concepts and teachable moments from the OAE experience into classes. Gains from the OAE experience are supported through a growth-oriented school environment that embraces challenge, community, and the development of leadership competencies.

The following sections describe elements and interconnections of the theory of change in greater detail. These sections will focus on the outcomes of the OAE experience and the importance of and impact on the shared school environment with mechanisms of learning and preexperience factors discussed within the context of each section.

Social Connectedness

Of the three major outcomes of the school OAE experience, social connectedness was the dominant theme among all grade cohorts. Interviewees remarked on how the shared OAE experiences facilitated social bonding among students and improved rapport between students and faculty. This included students who look forward to the trip as well as those who would rather not leave the comforts of home. The OAE experience allowed

students to see their peers in a new light and the challenges of the expedition often brought members of the group closer.

An 8th-grader, who went on her first school OAE experience the previous spring explained that "bonding and relationships" were the most meaningful products of the trip. "It just made my trip," she said. "And just coming back here with all these close friends with whom I have a much closer relationship…It's really meaningful to me."

Students were able to live, travel, and connect with a smaller subset of their peers. The shared experience allowed existing friendships to grow stronger and offered opportunities for students to connect with peers they did not know well before the trip.

Shared Challenge and Social Connectedness

The challenge that came along with the experience served as an important mechanism for bringing the students closer. For many of the girls, getting through a long hiking day or overcoming homesickness was made possible by the social support of their peers. Students explained how feeling that they were "in it together" reduced feelings of helplessness and stress. Several students from each grade cohort noted how singing songs, sharing inside jokes, and simply venting frustrations helped get them through difficult hikes and homesickness. The group was central to the experience as both a means of support and an opportunity for connection.

Being Away and Social Connectedness

Interviewees reflected on the importance of 'being away' from home and school, distanced from the distractions of technology, daily stress, and normal social roles. An 8th-grade student talked about how the trip allowed her to let down her guard and be

herself:

> At school, I like to say to my friends you put on a mask. Some days you put on a mask because you are worried about what some people think about you and some days you don't because you don't care…but on [these backpacking trips] everyone is the same: you haven't showered, you haven't cleaned, you're not using a toilet…you're not sleeping on a bed. You don't have to put on a mask because everyone else is the same.

Being away from the normal routine and distractions allowed for a reconsideration of norms and expectations, allowing students to interact in a more authentic manner.

Many students noted that taking a break from technology served as a mechanism for greater interpersonal connections. They explained that they often feel tied to phones, tablets, and social media in ways that sometimes feel overwhelming. Pressing pause on ever-present distractions created the space to connect authentically with others. See Table 2.1 for additional quotes.

Table 2.1: Mechanisms for supporting social connectedness

Shared Challenge	"I had to keep reminding myself, 'I'm feeling really crappy right now but my whole group is too and we're all going through the same experience together…The only way we're going to get through this or enjoy it at all is if we do it together as a group." (11th-grader)
Being Away	"For me, the technology part really affected me a lot because I realized how much closer you can get with someone when you are not worrying about all the social media stuff—being apart from that and being present. Being present really helped me." (8th-grader)
	"…even when I am with a friend, they may be having five conversations with other friends. Like texting...It takes away from that personal connection. Being away from those distractions…brings you a lot closer to the person." (11th-grader)

Self-Efficacy in Leadership

The personal connections students made with their peers related to lessons in leadership. Creating a level of trust within the group encouraged students to take personal risks, work with others, make consequential decisions, and manage adversity—building self-efficacy in leadership. The experiential nature of the program provided students with a deeper understanding of the different facets of leadership and a new set of communication and conflict resolution skills, affecting student evaluations of their own leadership competence. Many of the girls took away key lessons in leadership, particularly students coming off their 9th-grade and 11th-grade experiences as these trips provided more opportunities for student autonomy.

The Importance of Different Leadership Roles

Students reported that their OAE experiences allowed them to explore different leadership roles, whether that be taking on a designated leadership role or stepping back and supporting others. Several students and faculty talked about how the experience encouraged students to work collaboratively and push personal boundaries. Several 10th- and 11th-grade students noted that a key lesson was learning how to support others in leadership roles, coming away with an understanding that so-called leadership does not necessarily require being the one in charge—you can show leadership by being actively engaged and holding yourself and others accountable (see Table 2.2).

Student Directed Decision-Making

The progression of OAE experiences has students take on more decision-making responsibility as the students get older. Faculty explained that the 7th-grade trip offers

Table 2.2: Mechanisms for building self-efficacy in leadership

New and Different Roles	"We had a couple people that weren't really leaders, vocal leaders, but when it was their turn for leader of the day, they really had to step up and burst their comfort zone. And I think a lot of people should take advantage of that because that helps a lot. It boosts your confidence and you reassure yourself that you can be a leader." (10^{th}-grader)
Student Directed Decision-Making	"We had to make a lot of our own decisions…We had to make decisions that would affect other people and we had to think of what's best for others as well as ourselves. Taking care of yourselves, staying hydrated, making sure you eat enough and that you communicate what you need." (11^{th}-grader)
Reflection	"It was definitely good for me to take a step back...and thinking about how other people might see what I'm doing objectively. Looking at [my leadership] and saying, 'I do like being in control…so how am I making sure I am not being controlling?" (10^{th}-grader)
Coaching and Mentorship	"I think the instructors definitely helped us. A lot of the time they would help us think…to not [dwell] on the problems but think about the ways it can get better, the ways you can help yourself or others." (10^{th}-grader)

opportunities to practice taking on a leadership role with close guidance from instructors. By 11^{th}-grade, students are making many important decisions on their own, with instructors acting more as coaches and mentors. Thinking about the potential outcomes of decisions and their impact on others was a lesson that several 10^{th}- and 11^{th}-graders discussed in their interviews. Within the context of the experience, many decisions have real consequences—from making it to camp in a timely manner to influencing group morale. With success and the occasional set back, students reevaluated their self-efficacy in leading others and working within a team.

Students observed that good decision-making was dependent on clear communication and feedback. Faculty noted that their students, especially those in 7th and 9th-grade often have a hard time giving good constructive feedback at school for fear of hurting social relationships. In the backcountry, it is difficult to push difficult discussions aside as students live and travel together for an extended period of time. Students noted that they sometimes needed to "have straight up conversations…to help us get through the week" or had to confront and resolve interpersonal conflict to meet group objectives. A 12th-grader thought that it was "a good experience to know how to deal with those situations and not let your frustrations get a hold of you…how to [and] being able to move on." Back at school, students may put off resolution by simply going to the next class or going home. The remote setting of the OAE experience and the immediate needs of the group often require conflict be dealt with swiftly and directly.

Building Self-Efficacy in Leadership Through Reflection

The intense nature of the course and emphasis on self-improvement encouraged students to reflect of their strengths and weaknesses as leaders. An 11th-grade student credited this self-awareness to lessons on leadership styles and the feedback she received from peers. This time away from the classroom allowed students to strategize and plan for how to implement changes upon returning to school. Many students talked about the need to be more vocal and involved in decision-making and the need to be more patient with others. Others came away with a new appreciation for their own capacity to step up and lead or maintain a positive attitude through a tough hiking day or a bout of homesickness.

Coaching and Mentorship

Students and school faculty made efforts to acknowledge the contributions of NOLS instructors to building self-efficacy in leadership. Students talked about how instructors served as mentors and facilitators rather than authority figures. Instructors helped students assess their leadership skills, provided encouragement and emotional support, and coached students on outdoor skills and group communication. Several faculty used the OAE to observe the teaching styles used by NOLS instructors, and felt that the instructors balanced instruction with opportunities for student autonomy and experiential learning.

Recalibrated Sense of Self

Reflection on personal accomplishment and time away from normal routines allowed students to reevaluate their sense of self, particularly beliefs of competence, potential, and personal values. OAE experiences provided physical, intrapersonal, and interpersonal challenges. These challenges resulted in a sense of accomplishment, self-confidence, and self-efficacy in problem solving and performing under difficult circumstances. Even students who dreaded camping reported that they changed the way they viewed themselves and their place in the social milieu of school.

Being Comfortable Being Uncomfortable

Many students reflected on how the OAE experiences made them understand the value of adaptability. The trip pulls students out of their familiar home and school environments and places them in remote wilderness locations with unique and challenging situations. Girls from each interview cohort expressed that they were often

uncomfortable on the OAE trips, largely due to being in unfamiliar surroundings, being away from the comforts of city life, and being placed in novel situations. For some, this state of physical and psychological discomfort was a source of anxiety going into the trip. However, many noted that through social support and learning how to stay warm and eat well, they learned to be "comfortable being uncomfortable," gaining self-efficacy for dealing with challenge. Several students noted this lesson could be carried over to other situations, from difficult projects to the transition to college. The OAE experience reminded them they could handle more than they expected (see Table 2.3).

Table 2.3: Mechanisms for a recalibrated sense of self

Comfortable Being Uncomfortable	"It shows why we do this. You're going to be in an uncomfortable situation one day and you're going to have to be able to figure it out. Being able to figure it out is what's going to make us successful…" (11th-grader)
Positive Mindsets	"So just being able to take the good out of every situation and understand the bad and also...it resolves. There are things you worry about so much but in the end it wasn't really worth the worry because it worked out okay. You will somehow figure it out. Spending so much time worrying about something that's trivial is not as important as experiencing it for what it is..." (12th-grader)
Empowerment, accomplishment, and independence	"I've just been really organized [since the trip]. I've…realized that no one else is going to do what I need to do for me. So just being a self-starter and doing my homework and not having anybody need to tell me to do it. I think that was a real valuable lesson that doesn't just apply to NOLS but also to everyday life." (10th-grader)
Novel Environment	"It opens your eyes to the fact that the world we live in now, in Los Angeles, is not the only world that exists." (12th-grader)
Reflection on Values and Beliefs	"It helped me see what was important in my life… I kind of really thought about who were my friends and my family. What I wanted to do and where I wanted to spend my time…It was easy for me to think about what really mattered. And then I came back and kind of implemented that in my life." (10th-grader)

The Value of a Positive Mindset

A key strategy for dealing with uncomfortable and challenging situations was keeping a positive mindset. Students explained that they were able to persevere through challenging hikes and thoughts of home by managing their perspective. Students practiced staying calm in times of anxiety and stress. As noted earlier, this ability to persevere was bolstered by positive peer support.

Empowerment, Accomplishment, and Independence

Overcoming personal fears, learning to live comfortably in the backcountry, traveling miles with a heavy pack, and taking on leadership responsibility led to a sense of empowerment. An 8th-grade student talked about how the trip made her feel more independent. She said, "I feel like now I don't need my parents to do everything for me and I do more things on my own." This sense of independence came about by being empowered to make decisions, cooking meals, and understanding the importance of being self-motivated while in the field. Accomplishing group goals depended on the girls being able to lead each other and take care of daily tasks with minimal adult directives. Students described how the experiential component of the trip, actually going out and trying new things and taking on personal accountability led to improved self-confidence in being able to do more for themselves.

The challenges inherent in the OAE experience provided an important mechanism for generating a strong sense of self-confidence and accomplishment. While the challenges varied by grade level to meet the physical and emotional capabilities of each group, students across all grades talked about peak challenge experiences and their impact on their confidence. Several 11th-grade students talked about a day hike on their

most recent trip that included a nontechnical peak ascent with one student remarking “I can’t believe I just did that!” This produced both a sense of pride and a general feeling of accomplishment. Students mentioned that overcoming doubt and physical exhaustion changed their view of what they thought they could achieve.

Novel Environment

Understanding they could manage challenge, reinforced student beliefs regarding the value of trying new things. Part of an individual’s identity is connected to how they view the world and a conception of the potential opportunities that lie ahead in their lives. Although nearly all of the school’s students are college bound, the OAE experiences helped the girls expand their range of activities and experiences that define them.

Reflection on Values and Beliefs

Finally, the time away from school encouraged some students to reflect on their lives back home. Several 10th- and 11th-graders talked about being overscheduled and stressed at home. The OAE experiences, while school-related, were a welcome break from the routine. It gave them a chance to step away from the day-to-day and reexamine their lives from a new perspective. Students valued getting away from “the grind” and being able to think about how they could apply what they learned. Several talked about a new appreciation for nature as well. Overall, OAE experience afforded the time, and setting for a reset—a chance to “think about what really mattered” in their lives.

Importance of the Shared School Environment

The school plays an important role in ensuring gains made on these OAE experiences are not lost. As the right side of Figure 2.1 summarizes, returning to the same

school allowed students in this study to carry new and transformed relationships and shared narratives back to campus. The growth-oriented culture of the school supported the continuation of learning through lesson integration and reinforcement and opportunities for practice. Unlike most OAE courses where participants come together for the specific purpose of participating in the course and then disperse upon completion, students are able to experience continuity from one learning space to another.

New and Transformed Relationships Continue at School

The primary benefit of school-related OAE experience is social in nature—friendships are allowed to endure and develop beyond the end of the OAE course. Students return to school with an expanded network of peers. Interviewees realized that the experience helped them to "branch out" and connect to new people. A 10th-grade student said, "I think it's a really important part of [our school's] community—being able to say hi to anyone in the hallway." A 12th-grade student suggested that the trip "unites the grade" helping foster a sense of belonging. Additionally, these shared OAE experiences build lasting relationships between students and faculty, as one chaperone observed:

> Interpersonally, I have felt that I have really gotten to know the girls and the girls have really gotten to know each other in a totally different environment that's not at all academically focused. One that really focuses on who they are and how they behave and how they express reactions about each other… the relationship building aspect of it is really important.

Shared Narratives Build Common Identity

A secondary benefit to the school is that these OAE experiences foster a connected academic community through shared stories of challenge and peak

experiences. An 8th-grade student said that "since everybody goes through the same thing, everybody does it, it kind of expands our conversation…this is something we've all been through." A 12th-grader near graduation echoed this sentiment saying, "I think it really brings the students and the teachers that come with us, it brings us all together."

The shared narratives from OAE experiences allow the school to leverage the experiences into something more than time away from school. To be sure, standalone OAE programs produce similar outcomes to the school program from this study—strong social connections, lessons in leadership, and opportunities for reevaluating identity, capabilities, and potential. But in those standalone programs, the supportive social structure and sense of shared experience dissipates at the end of a course. At school, highlights and challenges are told and retold, reformed, and reinterpreted over time, reinforcing social connections and reminding students, as one 12th-grader pointed out, that they do have the capability and "confidence…to [get] through something that was really difficult."

Supporting OAE Outcomes at School

The shared school environment helps ensure that gains from the trip are not lost. Leadership lessons from OAE experience can be revisited and reinforced back at school. Students from each cohort talked about how they were able to take lessons from their trips and apply them to school. Students talked about how the trip gave them decision-making and communication skills to navigate collaborative projects and conflict. Interviewees shared anecdotes about providing better feedback to peers and sports teammates or taking the initiative to bring up student issues with faculty. Some teachers talked about how they refer to these OAE experiences and leadership lessons when

discussing problem solving and adversity in class. The overall culture of the school—one that embraces personal growth, challenge, and leadership—supports the practice and reinforcement of learning outcomes from the OAE experiences. That said, both students and faculty conceded that even more could be done at school to reinforce lessons, from using the NOLS leadership language more consistently, to making more time to let students reconnect with their expedition mates.

The continuity between these unique OST experiences and school provides a strong example of how OAE can support student engagement. OAE provides a means to encourage student interaction and cooperation while giving students the opportunity to practice leadership and communication skills. The intense nature of OAE coupled with time for reflection allows students to reevaluate themselves and their relationships with others. Upon returning to a shared school environment, students have stronger connections with their peers and faculty members as well as a shared sense of accomplishment—supporting a positive and inclusive learning environment.

Complementing Classroom Learning Through OAE

The integration of an intense and novel OAE experience within overall school curriculum allowed for the development and cultivation of critical outcomes that benefit classroom learning—especially those associated with sense of belonging, self-efficacy in leadership-related competencies, and identity. Research has noted how these outcomes are related to factors tied to student motivation and engagement (see Farrington et al., 2012). Though ambitious and resource intensive, this approach may serve as a model that supports the educational needs of adolescents while fostering a sense of school community.

School-Related OAE and Noncognitive Factors

The first research question for this study sought to understand how school related OAE experiences contribute to the development of noncognitive factors in adolescent students. For the independent all-girls school in this study, the three experiences in 7th-, 9th-, and 11th-grade resulted in stronger social connections, self-efficacy in leadership competencies, and an overall reappraisal of individual and group identities. The mechanisms of learning inherent to OAE supported the development of these particular outcomes. Living and travelling together in small social groups allowed students the opportunity to get closer through shared challenges and extended personal interactions away from school. The physical and mental challenges associated with an OAE experience resulted in students understanding that they could manage adversity and accomplish difficult tasks. The combination of these interpersonal and intrapersonal outcomes paired with time for reflection allowed students to reconsider their own identities as students—often reinforcing beliefs that they are strong, capable, and empowered—and their place within the social structure of school.

These outcomes align with those commonly reported in OAE research. Student reported outcomes related to social connectedness, greater self-awareness, leadership and teamwork skills, and general self-efficacy and self-confidence have been found in numerous studies (cf. Goldenberg, McAvoy, & Klenosky, 2005; Hattie et al., 1997; Sibthorp et al., 2008). What is unique about the findings from this study is that students are able to return to a shared school environment where outcomes can directly support classroom learning. This study contributes to a gap in the literature on the use of OAE with intact groups of students from the same school (Sibthorp & Jostad, 2014).

The study's second research question sought to understand how shared OAE experiences could contribute to both student and school success. Findings revealed a relationship between OAE participation the cultivation of noncognitive factors like sense of belonging and self-efficacy beliefs—both of which contribute to personal sense of self and group identity.

The school-related OAE experiences allowed students to build new connections with peers, deepen existing friendships, and interact with faculty in an informal environment. These relationships among students and faculty help foster students' sense of belonging and an inclusive culture. Shared experiences with peers and faculty experiences allow for the creation of narratives that support a collective identity and a sense of belonging. These transformed relationships expand students' social networks and encourage more collaboration outside of core social groups.

A strong sense of belonging and a supportive academic community have long been associated with student engagement (Goodenow & Grady, 1993; Osterman, 2000; Walton & Cohen, 2011). A weak sense of belonging can lead to feelings of isolation and lack of academic motivation (Eccles & Wigfield, 2002). Conversely, learning environments where learners have strong affiliations with others (Yeager & Walton, 2011) or even positive weak ties with peers (Sandstrom & Dunn, 2014) can result in an overall sense of well-being, reduced stress, and increased motivation and task perseverance. At the school in this study, students and faculty shared a belief that the OAE experiences improved relationships. These strengthened relationships facilitate communication between students and faculty and create an environment where students feel supported and welcomed by a community of peers.

Strengthened relationships and a sense of belonging contribute to self-efficacy in leadership and these beliefs can carry over to the school environment. Students from the independent all-girls school felt they gained self-efficacy for taking on various leadership roles, self-efficacy for using communication and conflict resolution skills, and self-efficacy for dealing with challenge and adversity. At school this translates into students taking on new leadership roles and using various communication skills in class and school activities. Students also come away with a shared mindset that students are "strong women," both mentally and physically.

Social cognitive theory posits that student achievement is based on an interaction between behaviors, beliefs, and environmental conditions (Bandura, 1986, 2001). These OAE experiences provide opportunities for students to build competencies within a supportive environment that provides real time feedback. The resulting set of beliefs can support learning back in the school environment. "Compared with students who doubt their learning capabilities, those who feel efficacious for learning or performing a task participate more readily, work harder, persist longer when they encounter difficulties, and achieve at a higher level" (Schunk & Pajares, 2001, p. 16).

Both a sense of belonging and increased self-efficacy in leadership contribute to the development of positive individual and collective identity among students. Like other OST and afterschool activities, OAE experiences are a place to try new things and explore individual identity in a nonacademic setting (Feldman & Matjasko, 2005; Larson, 2011; Shernoff & Vandell, 2007). In this study, students formed or revised views of themselves as leaders, learners, and members of the school community. The shared nature of the experience and the accompanying narratives then contribute to a shared

identity among students—an identity that takes pride in leadership, challenge, and stepping out of personal comfort zones.

The third research question asked how noncognitive factors could be developed and retained when bridging OST and school. Schools might wish to intentionally incorporate specific components inherent to OAE: a) personal and shared challenges, b) opportunities to unplug from day-to-day life, c) a sense of novelty, d) opportunities for social connections, e) opportunities to practice essential noncognitive skills such as self-discipline, f) mentoring via both staff and other participants, and g) an enjoyable and challenging environment. These elements are common in outdoor and adventure program models (cf. McKenzie, 2003; Walsh & Golins, 1976). However, when OAE experiences are integrated into overall school curriculum, schools can increase program impact as a shared school environment provides additional consistency and reinforcement. Schools also possess awareness of predictable transitions in adolescents' educational trajectories that many standalone OAE programs lack. In addition, the social connections formed during OAE experience can continue. In many OAE programs the social group dissipates at program conclusion. This dissolution of the social group and lack of continuity inevitably erodes some of the value as the social structures and application contexts change. A school that incorporates OAE into its overall curriculum has the opportunity to build on developmental and social gains back at school.

Future Research Directions

Moving forward, research should continue to look at how schools can use OAE to complement classroom learning. Future studies could use quantitative methods to examine the relationships between OAE participation and particular noncognitive factors.

While there is an increased interest in the value of OST like OAE activities, additional research will help educators, administrators, policymakers, and parents make the connection between participation and the noncognitive factors that indirectly lead to student success (Putnam et al., 2012). Additional research could also focus specifically on the development of noncognitive factors and adolescent girls. Although this was not the original focus of the study, findings support the development of self-efficacy and social belonging. Research has noted that adolescent girls place a greater emphasis on social belonging (Perry & Pauletti, 2011) than boys and that females tend to have lower self-efficacy in areas like leadership (Galambos, 2004; Ridgeway, 2001). OAE appears to be well positioned to address issues of social connection and self-beliefs.

Limitations

This study is not without its limitations. First, the independent all-girls school in this study is a unique educational environment with exceptional resources. It is hard to generalize findings to other settings due to the uncommon curriculum and the unique culture of the school. Second, like most studies, the research was vulnerable to the biases, personal experiences, and educational background of the primary investigator (Chamaz, 2014). To reduce bias, the PI consulted with a female professor versed in qualitative research and other graduate students, both male and female, to evaluate codes, themes, and general findings. Finally, there may have been bias in participant selection even though it included a broad range of backgrounds and opinions. It is possible that many of the students and faculty who agreed to take part in the study had positive dispositions toward the school's OAE experiences, though more than a dozen of the interviewees expressed that they did not necessarily look forward to the experiences. The reader may

wish to keep these caveats in mind when interpreting findings.

Conclusion

Despite the distinctive nature of the school in this study and their OAE experiences, this study underscored how educators can take advantage of experiential learning opportunities outside of the classroom to build social connectedness, foster positive self-efficacy beliefs, and provide opportunities for students to explore their personal sense of self. While this study and other research points to the promise of using OAE to complement classroom learning, few schools fully incorporate OAE experiences into curriculum. Intentionally designed OAE programs offer an intriguing option for schools interested in cultivating noncognitive factors that carry over to the classroom and support student success.

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CHAPTER 3

BRIDGING THE OPPORTUNITY GAP: COLLEGE ACCESS PROGRAMS AND OUTDOOR ADVENTURE EDUCATION

Abstract

Students with low socioeconomic status (SES) are much less likely to participate in out-of-school-time (OST) activities than their more affluent peers (Putnam, Frederick, & Snellman, 2012). This "opportunity gap" has compounding effects as these activities help develop key noncognitive factors: the skills, beliefs, and behaviors associated with college readiness. College access programs provide opportunities that may be out of reach to students with low SES, from academic support and college tours to outdoor adventure education (OAE) experiences. OAE is associated with the positive development of many noncognitive factors like self-efficacy, attitudes toward personal development, and sense of belonging. This mixed methods study involved 165 students from a college access program and examined how participation in a weeklong OAE experience related to changes in student attitudes and beliefs. Results suggest that the OAE experience—with its inherent challenges and supportive group structure—contributed to increased self-efficacy for dealing with challenge and using help-seeking behavior.

Introduction

There is a widening "opportunity gap" among youth in the United States where students from low socioeconomic backgrounds are 27% to 50% less likely to participate in out-of-school-time (OST) enrichment activities (e.g., sports, clubs, volunteer service) than students with high socioeconomic status (SES; Putnam, Frederick, & Snellman, 2012). This is largely due to wide disparities in family income. The highest earning families spend nearly *seven times* or more on OST opportunities than families with low incomes (Duncan & Murnane, 2011). These disparities have compounding effects as it is often through OST activities that students develop competencies important for college and beyond, from perseverance and self-confidence to social skills and leadership (Durlak, Weissberg, & Pachan, 2010; Feldman & Matjasko, 2005). Many of the outcomes associated with enrichment opportunities are often referred to as *noncognitive factors*[2]—skills, beliefs, and behaviors that cannot be measured directly through traditional academic assessments that include standardized testing (Dweck, Walton, & Cohen, 2011; Heckman & Rubinstein, 2001). There is a growing body of evidence that noncognitive factors—specifically student self-efficacy beliefs, mindsets toward personal development, and sense of belonging—contribute to performance in the classroom and may be just as important as intelligence for academic achievement, college attendance and completion, and long-term personal success (Duckworth, Peterson, Matthews, & Kelly, 2007; Dweck, Walton & Cohen, 2011). These noncognitive factors are linked to student motivation and the ability to manage adversity and challenge. Ideally, every

[2] Scholars have tried to use other terms like character or social-emotional skills, yet the term noncognitive factors has gained traction in educational policy circles (Farrington et al., 2012; Shechtman et al., 2013). Therefore, it will be used in this article.

student has access to a panoply of quality experiences that contribute to positive developmental trajectories. Unfortunately, the growing opportunity gap demonstrates that many students are simply missing out.

College access programs are one approach used to address the opportunity gap. As students with low SES pass through childhood and adolescence, many encounter numerous barriers that make it difficult to break the cycle of poverty including a lack of both the financial resources and necessary skills for college (Shechtman, DeBarger, Dornsife, Rosier, & Yarnall, 2013). College access programs work with low-income students, sometimes over several years, to support academic and personal development in an effort to improve college readiness (Glennie, Dalton, & Knapp, 2014; Venezia & Jaeger, 2013). Many programs provide ongoing support with schoolwork, arrange college visits, help with the college application process, and aid the transition to college. In addition, programs may offer programming and unique OST experiences that may be otherwise out of reach financially (Ng, Wolf-Wendel, & Lombardi, 2014).

One type of OST experience offered by college access programs is outdoor adventure education (OAE). OAE uses outdoor activities and other learning opportunities to develop technical skills and promote personal growth (Ewert & Sibthorp, 2014). Participation in OAE is related to the development of many noncognitive factors including the development of self-systems (e.g., self-efficacy, self-confidence), changes in beliefs toward personal potential, and feelings of social belonging (Ewert & McAvoy, 2000; Hattie, Marsh, Neill, & Richards, 1997; Sibthorp, Furman, Paisley, & Gookin, 2008). These experiences, however, come at a significant financial cost and many students with low SES only have access to these opportunities through these college

access programs (Rose & Paisley, 2012; Warren, Roberts, Breunig, & Alvarez, 2014). While there is evidence that OAE can be a catalyst for learning, there is little research on the effectiveness of these experiences when they are a component of a larger precollege program.

Therefore, the purpose of this study was to understand the role that OAE experiences play in the development of noncognitive factors among adolescents involved in a college access program. As educators and policy makers consider ways to address the opportunity gap and support college attainment for more students, OAE may be one way to cultivate mindsets, beliefs, and behaviors that encourage perseverance in the face of challenges. This study looks at how OAE, with its inherent challenges and peak experiences, can augment college preparatory programs.

The Opportunity Gap and the Role of Out-of-School-Time Experiences

> *"Middle class youth have always had an advantage, but their relative advantage has increased significantly over the last several decades."* (Putnam et al., 2012)

Conversations about income disparities are not new to discourse in Western education. However, what is becoming clearer is that income inequalities have compounding effects, potentially limiting social mobility among those with low SES (Duncan & Murnane, 2011; Putnam et al., 2012). Recent longitudinal research reveals that students with low SES are less likely to participate in extracurricular enrichment opportunities than students from middle class backgrounds (Duncan & Murnane, 2011). Putnam and colleagues (2012; 2015) found that participation rates in sports, extracurricular activities, and volunteerism have decreased among students with low SES

while participation rates among students from middle to high SES backgrounds have increased. As a result, fewer students from low SES backgrounds are benefiting from OST activities. Experiences, born from extracurricular activities ranging from school band, debate, and afterschool sports to outdoor adventures, contribute to student development in ways that are distinct from school settings, often providing experiential learning that can lead to improved self-perceptions, connections to others, and positive behaviors that lead to increased motivation and ultimately academic achievement (Dawes & Larson, 2011; Durlak et al., 2010; Larson, 2011; Vandell et al., 2005). These intrapersonal and interpersonal factors also support successful transitions to the college environment (Nagaoka et al., 2013).

Noncognitive Factors and OST

Many of the outcomes related to OST experiences fall under the umbrella term of noncognitive factors. The term encompasses a range of factors that contribute to success, from observable behaviors like study skills and turning in homework to more internal conditions related to feelings of belongingness, beliefs related to competence (e.g., self-efficacy), self-regulation, and attitudes towards learning (Dweck et al., 2011). According to Roderick, Nagaoka, and Coca (2009), noncognitive factors:

> include a range of behaviors that reflect greater student self-awareness, self-monitoring, and self-control—study skills, work habits, time management, help-seeking behavior, and social problem solving skills. Meeting the developmental demands of college requires behavioral problem-solving, and coping skills that allow students to successfully manage new environments and the new academic and social demands of college. (p. 190).

Noncognitive factors have received considerable attention in discussions of education and education policy (e.g., Pellegrino & Hilton, 2012; Tough, 2011, 2012). The excitement

stems from the understanding that noncognitive factors are considered malleable well into adulthood and are often more predictive of long-term success than measures of intelligence (Blackwell, Trzesniewski, & Dweck, 2007; Dweck et al., 2011; Shechtman et al., 2013).

College Access Programs and OST

College access programs for students from low socioeconomic backgrounds offer one route to bridge the opportunity gap. Though they may differ in design and scope, college access programs seek to aid in student readiness by providing mentorship, academic and testing support, and help with the college application and selection process (Harvill et al., 2012). They also offer OST enrichment opportunities that may otherwise be unavailable to family financial constraints.

College access programs are designed to support students from low income families, many of whom do not have a parent that holds a postsecondary degree (Glennie et al., 2014; Ng et al., 2014). Overall, studies on college access programs show that they have positive impacts on academic achievement and rates of college enrollment (Cates & Schaefle, 2011; Glennie et al., 2014; Kautz & Zanoni, 2014; Thomas, 2014). However, a longitudinal study on college access programs conducted by Glennie and colleagues (2014) found mixed results on indicators of college readiness, many of which are linked to noncognitive factors. As noted previously, OST activities are often where these factors are developed.

OST experiences are a part of many college access programs, as researchers and program managers recognize the value of student development in less formal, nonacademic settings. Many college access programs intentionally target the

development of noncognitive factors in addition to providing academic support (Glennie et al., 2014). Other multi-year college precollege programs like Summer Search and C5 Youth Programs use experiential activities that include OAE experiences to promote the development of noncognitive factors (C5 Foundation, 2015; Jostad, 2013; Paisley et al., 2014).

Outdoor Adventure Education and Noncognitive Factors

OAE uses activities like backpacking and sea kayaking—often in a natural or wilderness setting—to teach technical skills, promote interpersonal competencies, and encourage intrapersonal growth (Ewert & Sibthorp, 2014). Research in OAE has shown that participation promotes the development of self-confidence, self-efficacy, tolerance for adversity and challenge, self-regulation, and identity formation (e.g., Ewert & McAvoy, 2000; Hattie et al., 1997; Sibthorp et al., 2008; Widmer & Taniguchi, 2014).

These experiential learning opportunities can act a mechanism for establishing powerful social connections, especially among intact groups where participants know each other outside the outdoor experience. OAE has been linked to greater communication and teamwork among corporate work teams (Gass & Priest, 2006) and improved social connectedness among college students involved in wilderness orientation programs (Bell, Gass, Nafziger, & Starbuck, 2014). The close interaction among participants often leads to lasting friendships and an overall sense of belonging within the group.

The inherent qualities of OAE programs—challenge, real or perceived risk, peak experiences, collaboration and social interaction, skill acquisition and application, direct feedback from instructors, peers, and the environment—provide potential for affecting a

number of noncognitive factors discussed in this article. Hattie (2009) found OAE to be especially effective at fostering student development because "learning about facing challenge, seeking feedback, adapting to peer cooperative learning, and enhanced self-regulation about one's skills and strengths seems to last beyond the experience in the outdoors" (p. 157). Surprisingly, there is a lack of research on the outcomes of OAE activities specifically within college access programs. Considering the existing evidence on the importance of OST experiences and the potential value of OAE, there is a need to understand how college access programs can use OAE to help develop particular noncognitive factors related to college readiness.

Noncognitive Factors of Interest

OAE is particularly well positioned to influence a subset of noncognitive factors, which are important for college success. For the purposes of this paper, particular noncognitive factors of interest are self-efficacy beliefs for dealing with challenge and engaging in help-seeking behavior, mindsets related to personal potential, and sense of belonging within an academic community.

Self-efficacy refers to an individual's beliefs to accomplish a given task or goal (Bandura, 1977, 1997) and OAE participation is closely associated with the development of both domain-specific and self-efficacy beliefs (Hattie, 2009). Specifically, OAE research has found connections between program participation and the development of self-efficacy in dealing with challenge as well as self-efficacy for working with others (Sibthorp, Paisley, Gookin, & Furman, 2008). In other contexts, self-efficacy for dealing with challenge is important as it is a prerequisite for implementing key coping strategies since students face obstacles and setbacks on their educational pathways. (Farrington et

al., 2012). The team-based approach of OAE also fosters a sense of interdependence within the small community of learners, with situations where asking for help is encouraged (Sibthorp & Jostad, 2014).

Self-efficacy is closely related with another set of noncognitive factors known broadly as mindsets and more specifically as implicit theories. Mindsets and implicit theories refer to one's beliefs about the malleability of particular traits and abilities (Burnette et al., 2012; Dweck & Leggett, 1988; Dweck et al., 2011). Dweck and Legget (1988) explain that those with an *incremental* theory (i.e., growth mindset) believe that skill and ability within a domain can grow with practice and effort while those holding an *entity* theory (i.e., fixed mindset) believe that skill and ability are relatively unchangeable. Dweck and colleagues have found that "a growth mindset about intelligence fosters tenacity—by inspiring students to act on their self-efficacy and allowing self-efficacy to survive in the face of setbacks—where a fixed mindset undermines it" (Dweck et al., 2011, p. 9). OAE may be an intervention that can influence mindsets in areas important to college access programs, particularly mindsets toward leadership and emotional control. Many OAE programs offered by the National Outdoor Leadership School and Outward Bound include a leadership curriculum that emphasizes different types of leadership, encourages students to take on leadership roles, and teaches the value of different leadership skills including appropriately regulating emotions (Gookin & Leach, 2009).

Finally, research has found that OAE fosters a sense of belonging when participants share a common application environment like school or work (e.g., Bell et al., 2014; Gass & Priest, 2006). When students feel that they are part of an academic community, there is evidence that students take on desirable academic behaviors

including task perseverance and engagement with lessons (Dweck et al., 2011; Farrington et al., 2012; Walton, Cohen, Cwir, & Spencer, 2012). A sense of belonging can be broadly defined as a social connection to individuals or groups within a particular performance domain like school or an OST activity (Walton & Cohen, 2007). Walton and Cohen (2007) examined sense of belonging and found that Black college students were more susceptible to perceptions of inclusion and exclusion than White students and that these beliefs were related to academic achievement. A subsequent study found that interventions that promoted belonging led to improved academic performance, improved sense of belonging, and higher levels of health and well-being in comparison to control groups (Walton & Cohen, 2007, 2011). College access programs use OAE to promote or reinforce social belonging among a cohort of students intent on going to college—thereby reinforcing shared goals and norms, particularly those related to higher education attainment.

Study Purposes and Research Questions

Given the importance that college access programs that work with students from low socioeconomic backgrounds now place on noncognitive factors, it is surprising that there is little research on the use of OAE within these programs. While high quality OST experiences are associated with the development of noncognitive factors, there is a need to understand if college access programs are helping bridge the opportunity gap by providing access to these OAE experiences. Therefore, the primary purpose of this study was to explore how OAE experiences are related to the development of noncognitive factors among adolescents involved in a college access program. Student self-efficacy beliefs, mindsets, and sense of belonging were of particular interest as these are factors

identified as essential for student success and align with OAE outcomes. These noncognitive factors are especially important for students moving through key transitions to high school and college, as many students from low SES or minority groups can often be overwhelmed by increased academic expectations and changing social dynamics (Blackwell et al., 2007; Tamir, John, Srivastava, & Gross, 2007; Walton et al., 2012). Specific research questions (RQ) include:

RQ1: Does participation in an OAE experience within a college access program relate to changes in student self-efficacy beliefs, mindsets, and sense of belonging?

RQ2: If OAE is related to shifts in student self-efficacy beliefs, mindsets, and/or sense of belonging, how does the OAE component contribute to these changes?

Findings from this study may help educators, program managers, parents, and policy makers understand the function and overall effectiveness of OAE experiences within college access programs. OAE experiences seem particularly well-positioned to influence self-efficacy for dealing with challenge and using help-seeking behaviors, cultivate growth mindsets about leadership and emotional control, and foster a sense of belongingness among participants.

Methods

This study involved students from C5 Youth Programs, an initiative that offers mentorship, college preparation, and leadership development programs for high potential students from urban centers in Texas, New England, and Georgia, as well as the city of Los Angeles. Students may come from single-parent homes, reside with extended family, live below the poverty line, and/or come from high risk neighborhoods (C5 Foundation,

2015). Students in C5 begin the summer prior to 8th-grade and the program concludes their final year of high school. During the first two summers of the program, students attend a residential camp for a month. Following 9th-grade, C5 students participate in a week-long OAE backpacking course that is focused on personal growth and leadership development. C5 partners with the National Outdoor Leadership School (NOLS) to facilitate this signature summer event. NOLS is recognized as a leading organization in OAE, and offers courses in a variety of skill areas that include backpacking, mountaineering, rock climbing, canoeing, and sea kayaking that vary in length from a few days to several months (National Outdoor Leadership School, 2015). Curriculum emphasizes technical skills as well as the many facets of leadership that include communication, dealing with adversity and uncertainty, judgment and decision making, and positive peer interactions (Gookin & Leach, 2009).

Courses were based at NOLS branches in Washington, Idaho, Wyoming, and the Adirondacks in Upstate New York. Students traveled through the backcountry in single-sex groups of 8-12 with peers from their regional program along with a C5 advisor and 2-3 NOLS instructors.

To explore how OAE experiences relate to the development of self-efficacy beliefs, mindsets, and sense of belonging, the study employed a repeated measures, mixed-methods, embedded, dominant-less-dominant, quasi-experimental design. Embedded designs use both quantitative and qualitative methods simultaneously but one method is added on to a dominant method (Creswell & Plano Clark, 2011). In this study, the quantitative component was dominant method addressing the primary research

question with semistructured interviews of a subset of participants providing additional insight.

Quantitative Measures

Students completed the noncognitive factors measurement instrument (NCFMI) two times—on the first day of their OAE experience prior to leaving for the field and on the last day of the course. The NCFMI includes several measures adapted from existing instrumentation.

Self-Efficacy Measures

Self-efficacy for dealing with challenging situations (SE_CHLNG; $\alpha = .89$) was measured with an 11-item scale based on self-efficacy scale development guidelines (Bandura, 2006) and specific items from the coping efficacy scale ($\alpha = .80$ to .91; Chesney et al., 2006). The coping efficacy scale rates students' beliefs related to their ability to perform specific problem solving behaviors which relate to desirable noncognitive factors (Farrington et al., 2012; Nagaoka et al., 2013). The scale has several content domains that include problem solving strategies (e.g., "Break a difficult problem down into smaller parts"), task perseverance (e.g., "Keep on working on the problem, even if I don't know how it will turn out"), and emotion regulation (e.g., "When I am struggling with something, I can stop myself from being upset by unpleasant thoughts"). The NCFMI also included a six-item scale measuring self-efficacy using help-seeking behaviors (SE_HELP; $\alpha = .91$). An example statement is "Go to teachers, instructors, counselors, or mentors when I feel overwhelmed with something and want to quit." Research partners and researchers with experience studying self-efficacy evaluated

questions from both scales for construct validity. The measures use a Likert-type scale ranging from 0 (“I cannot do it at all”) to 10 (“I am highly confident I can do it”).

Mindset Measures

Two 4-item scales adapted from the Dweck Mindset Instrument (Blackwell et al., 2007; Dweck, 2006) were be used to measure students’ mindsets concerning the malleability of leadership (MIND_LEAD; α = .54) and emotional control (MIND_EMO; α = .63). Each scale included two items representing incremental theories (growth mindsets) and two items on entity theories (fixed mindset). Items are rated on a Likert-type scale with 1 indicating strongly disagree and 8 indicating strongly agree with questions on entity theories reverse scored. Example items include “If they want to, people can change the emotions they have,” and “You have a certain amount of leadership ability, and you can’t really do much to change it”. The 4-item scale on emotional control has been found to have a Cronbach’s alpha of .75 (Tamir et al., 2007) and similar short measures of implicit theories of leadership reported Cronbach’s alphas between .62 and .94 (Burnette, Pollack, & Hoyt, 2012; Werth, Markel, & Förster, 2006).

Sense of Belonging Measures

The final measure of the NFCMI examined student sense of belonging related to school and C5 which are two distinct academic communities. Sense of belonging in school (BEL_SCHOOL; α = .75) was used a comparison for sense of belonging at C5 (BEL_C5; α = .74). The measure is a 14-item scale based on the Psychological Sense of School Membership (PSSM; Goodenow & Grady, 1993). The PSSM has been shown to have a Cronbach’s alpha above .80 (Anderman, 2003; Goodenow & Grady, 1993). The

original 18-item PSSM measure was modified to make sure that there were an equal number of positively and negatively worded questions and shortened to account for possible testing fatigue. The final measure retains the most applicable items that align with the study's purpose. The measure uses a Likert-type scale from 1 ("Totally False") to 8 ("Totally True"). Negatively worded items are reverse scored for analysis and reporting.

Qualitative Component

Qualitative interviews with a subset of 27 (15.4%) students took place in person at NOLS branches hosting C5 courses. The purpose of these semistructured interviews was to gain a greater understanding of the student experience offering the opportunity to identify themes from responses (Marshall & Rossman, 2006; Miles, Huberman, & Saldana, 2014). Questions focused on what students learned from the course, changes to self-perceptions and beliefs, and other salient topics related to the experience and noncognitive factors. Representative questions included: "What were some highlights from your outdoor course?", "What were some challenges that you encountered? How did you overcome those challenges?", "Tell me about your relationships with your C5 peers" and "Why do you think C5 sent you on this trip?" among others. The goal was to interview students from each C5 location, find a balance of male and female voices, and seek out a broad range of experiences and opinions while keeping the number of interviews manageable

Quantitative Data Analysis

Quantitative measures were analyzed using multilevel models (MLMs) that suit the nested structure of the data (Kwok et al., 2008; Raudenbush & Bryk, 2002). MLMs maximize the ability to identify associations between outcome variables and predictors and understand the nature of any associations. In this study, time was nested within students and students were nested within expedition groups creating nonindependence, and group sizes varied resulting in unbalanced data. All analyses were run using HLM Student Version 7.0 (Raudenbush, et al., 2011).

Data were screened and cleaned resulting in 165 matched pre and postcourse instruments. Ten subjects were removed due to incomplete data. After data screening and cleaning, the first step in MLM analysis requires creating a baseline model for each outcome variable to determine if variance could be accounted for at the occurrence, individual, and group level. The following MLM was used:

Level-1 Model (Within Subject)

$$\text{OUTCOME}tij = \pi 0ij + etij$$

Level-2 Model (Between Subjects)

$$\pi 0ij = \beta 00j + r0ij$$

Level 3 Model (Between Groups)

$$\beta 00j = \gamma 000 + u00j$$

In this model *t* represents time in weeks, *i* represents individuals, and *j* represents groups. Intraclass correlations (ICC) was computed to determine within subjects variance, between subjects variance, and between group variance. Models that had less than 10% of variance at the group level were then simplified to two level models for parsimony

(Raudenbush & Bryk, 2002).

A series of MLMs then examined the relationships between OAE participation (time in weeks) and each outcome variable. Each model controlled for self-identified gender at level 2. The following three level model was used:

Level-1 Model

$$OUTCOME_{tij} = \pi 0ij + \pi 1ij*(TIME\_WKS_{tij}) + etij$$

Level-2 Model

$$\pi 0ij = \beta 00j + \beta 01j*(GENDER\_M_{ij}) + r0ij$$
$$\pi 1ij = \beta 10j$$

Level-3 Model

$$\beta 00j = \gamma 000 + u00j$$
$$\beta 01j = \gamma 010$$

Qualitative Analysis

The interviews were transcribed and analyzed using systematic qualitative techniques (Miles et al., 2014; Saldana, 2013). This process allows the researcher to identify salient themes and connections within the data. All of the interviews were transcribed and coded using a three stage process with the aid of HyperResearch software (ResearchWare, 2013). First, transcripts were open coded using *en vivo* and descriptive codes. Next, focused coding used constant comparison in conjunction with research memos and notes to identify themes and adjust and collapse codes. Finally, axial coding was used to identify connections among themes and relevant codes. The author worked with other professionals in educational research with extensive experience in qualitative coding to evaluate themes, codes, and connections. Quantitative and qualitative

components were then brought together for a comprehensive analysis. Data from each source was used to identify converging conclusions.

Results

The final sample included 165 C5 students enrolled on 20 different courses based out of four NOLS branches (Washington, Idaho, Wyoming, Adirondacks). Students were 14 to 16 years of age (*M*= 14.9 years) with females making up 56.5% of the sample. Looking at the background of the students, 46.4% identified as African-American, 39.3% as Hispanic/Latino or Latina, 9.5% as White, 2.4% as Asian American, and 1.2% as Native Hawaiian or Pacific Islander. All of the courses included backpacking, but one course in the Adirondacks was a backpacking and canoeing hybrid course.

Quantitative Results

Quantitative data went through standard data screening and cleaning prior to analysis. For remaining cases, missing values within a composite were replaced with the mean from other items in the scale (Creswell, 2008). Missing data accounted for less than 3% of all data.

The quantitative measures sought to answer the first research question: does participation in an OAE experience within a college access program relate to changes in student self-efficacy beliefs, mindsets, and sense of belonging? Analysis of the NCFMI measures revealed changes from pre to postcourse measures in the mean scores in self-efficacy for dealing with challenge (SE_CHLNG), self-efficacy for using help-seeking behavior (SE_HELP), and sense of belonging at school (BEL_SCHOOL). The use of a growth curve MLM model allowed for a better understanding how outcome measures

were influenced by time at level 1 (weeklong course participation), the control variable of self-identified gender at level 2, and expedition group at level 3.

Self-Efficacy Measures

Both self-efficacy measures were simplified to two level models as the inclusion of self-identified gender at level-2, made level-3 variance insignificant. When controlling for gender, the two-level models revealed that the level-1 predictor of time was significant for both SE_CHLNG, β = .76., $t(164) = 7.59$, $p = <.001$, and SE_HELP, β = .83., $t(164) = 5.74$, $p = <.001$. Participation in the OAE experience was associated with a .76 increase in SE_CHLNG score and a .83 increase in SE_HELP score, both on an 11-point scale. The associated effect size correlations (Kwok et al., 2008; Raudenbush & Bryk, 2002) for time at level-1 were $Pseudo\ R_{\varepsilon}^{2} = .25$ for SE_CHLNG and $Pseudo\ R_{\varepsilon}^{2} = .16$ for SE_HELP, indicating a small to medium effect size for both (Cohen, 1992). The intraclass coefficient (ICC) was .50 for SE_CHLNG and .56 for SE_HELP. In this context, ICC represents the percentage of variance that is between subjects.

Students that self-identified as female were significantly associated with lower levels of self-efficacy in both scales at both measurement points. At level-2, gender was dummy coded with 0 = male and 1 = female. For SE_CHLNG, being female was associated with a score that was .95 points lower than males (β = -.91., $t(163) = -4.93$, $p = <.001$, $Pseudo\ R_{\varepsilon}^{2} = .05$), and a similar association was found when SE_HELP was the outcome variable (β = -.973., $t(163) = -3.31$, $p = <.001$, $Pseudo\ R_{\varepsilon}^{2} = .01$).

Mindset Measures

Two-level models were run for both MIND_LEAD (α = .54) and MIND_EMO (α = .54) since level-3 variance was less than 10%. In the full model, both within-subject and between-subject predictors were non-significant.

Sense of Belonging Measure

Sense of belonging measures were analyzed using two-level models as between-group variance accounted for less than 10% of variance at level-3. For BEL_C5, the level-1 predictor of time and the level-2 control variable of gender were both non-significant. However, time (β = .19., $t(164) = 2.66$, $p = .009$, $Pseudo\ R_{\varepsilon}^{2} = .11$ and gender (β = -.40., $t(163) = -2.15$, $p = .03$, $Pseudo\ R_{\varepsilon}^{2} = .04$) for BEL_SCHOOL. This means that for a week of OAE participation, BEL_SCHOOL went up by .19 points on an 8-point scale, but the effect size was small. Female students' BEL_SCHOOL scores were .44 points lower than their male peers. There was a statistically significant difference BEL_C5 and BEL_SCHOOL on both pre (BEL_C5, $M = 6.92$, 95% CI [6.76, 7.09]; BEL_SCHOOL, $M = 5.97$, 95% CI [5.77, 6.17]) and postcourse (BEL_C5, $M = 7.04$, 95% CI [6.88, 7.20]; BEL_SCHOOL, $M = 6.16$, 95% CI [5.96, 6.36]) measurements, with C5_BEL with higher mean score at both time points.

Qualitative Findings

Qualitative interviews included 13 females and 14 males with representation from each C5 location and students from courses based out of NOLS branches in Washington, Idaho, and Wyoming. Interviews were between 15 min and 1 hr, resulting in approximately 14 hr of audio. Analysis of the interviews addressed the second research

question that sought to understand how an OAE experience contributes to changes in self-efficacy, mindsets, and sense of belonging. Findings provide some context for understanding the quantitative results of the study, particularly how the OAE experiences affected their self-efficacy beliefs and the role that C5 plays in students' lives.

Understanding Changes to Self-Efficacy

C5 students reflected on the experience and explained how physical, intrapersonal, and interpersonal challenges changed their self-beliefs. Many of the students reported that this was one of the most challenging experiences of their lives. While they had been on shorter, less rigorous backpacking trips during previous summers with C5, this experience proved to be a *benchmark challenge experience,* an experience that provides perspective when evaluating other challenging life experiences. A female from the NE said that the OAE experience "kind of helps you for future challenges knowing that you have done something hard and you can get through it even if you think you can't." See Table 3.1 for representative quotes.

So, what was it about the week-long trip that influenced their self-efficacy? First, students felt accomplished that they completed the trip, noting that they had to "push through" fatigue and wanting to quit. Second, the experience put them out of their comfort zones and students noted that they had to adapt to the new environment, new living arrangements, poor weather, and homesickness. Students talked about dealing with the unexpected—a long hike day, wet clothes, terrain—and understanding the value of adapting. Third, students appreciated the opportunity to practice leadership skills, from serving as leader of the day to working to be an active and supportive follower.

Table 3.1: Self-efficacy for dealing with challenge: Representative quotes

Pushing Through Adversity	"This was a once in a lifetime experience [that taught us] we can come back, we can have some scrapes, some bruises…but this trip [will] help with motivation for what we are going to do in the future. So if we actually feel like something is too hard, like a class…and you're struggling, just think back to your hiking experience and think 'this is nothing.' It keeps you motivated to push on…" (Male from C5 Texas)
Being Out of Comfort Zone	"I think I became more self-confident…but when I am outside of my comfort zone it goes really low. Here it grew more because I was outside my comfort zone completely and I was able to push myself and make the goals that we had set for each other. I was able to get through this even though this is hard for me, even though I am not used to it." (Female from C5 LA)
Confidence in Leadership	"I think the biggest lesson was not to underestimate myself. I think I do that a lot. These people, this whole week, have been supporting me and believing in me, and trusting me to lead them places." (Female from C5 Texas)
Dealing with Others	"I've learned to adapt to others' personalities. Not everyone is going to be how you want them to be. Everyone is unique in their own way and you just have to realize that and just adapt to it. Just don't try to make them change or something like that..." (Male from C5 Georgia)
Practicing Patience	"I learned how to be comfortable in a situation even though you don't like it…just keeping calm." (Male from C5 New England)

Leadership also involved dealing with interpersonal conflict, managing frustration with others, and practicing patience.

The social group, while occasionally a source of conflict or frustration, was often an important support mechanism. Through teamwork and positive encouragement, students were able to meet daily objectives like getting to camp as well as overcome the negative psychological states. Students noted that this OAE experience really drove home how important it was to maintain a positive attitude when dealing with adversity. It was

easy to see the impact of attitude in an environment where it is difficult to walk away from the challenges at hand. One female student from New England said one of her biggest takeaways was that “even though you can’t change a situation, you can definitely change your attitude towards it and that can make it a lot different.”

The team-oriented approach also had an effect on student perspectives on the value of seeking out help. A female student from Los Angeles articulated a key lesson shared by several interviewees:

> Back at home I try to be as independent as I can for my age so for me, independent meant never asking for help. Always being able to do it on your own. So I guess on this trip what I really learned was that it's okay to ask for help when you really need it. Like it doesn't make you not independent if you ask for someone's help. That's something I am going to take back home because you know I always said 'you’re independent, you don't need anyone else's help' but now I realize I could be independent and I also could ask for people's help. It doesn't make me dependent on anyone.

Other students talked about how the experience gave them new communication skills and confidence for working with peers and adults. In the unfamiliar and challenging context of the OAE experience, students had to rely on each other while seeking advice and guidance from NOLS instructors and their C5 chaperones. Several students talked about taking this lesson of reaching out to others with them home.

Mindsets Toward Leadership and Emotional Control

The qualitative data provided some information that may explain why there was no significant change in scores of MIND_LEAD and MIND_EMO from pre to postcourse. In regard to student mindsets toward the malleability of leadership ability, all of the interviewees shared that they believed that leadership was a skill to be learned. While they had different levels of self-efficacy in leading others or being a vocal leader,

students referenced C5's leadership goals and curriculum. During residential camps following 7th- and 8th-grade as well in the months leading up to their OAE experience following 9th-grade, students are exposed to C5's Leadership U classes. Interviews revealed that students understood that they were involved in C5 to become leaders in their schools and their communities. A male student from C5 New England explained how the OAE experience was a capstone experience for their leadership education to that point:

> Well they talk a lot about giving back to the community and to your community and going to college…if you take [the trip] seriously, you'll definitely gain more leadership skills…It takes a lot for people to do this. Not every kid off the street would be able to do…so [C5] gets you ready…they've been talking about [this trip] for years…It's a big step toward graduating from C5 and going to college.

A leadership mindset seemed well established among interviewees. However, as previously noted, students did express that there were leadership lessons they would take back with them. A female student from New England talked about using specific skills like "standing up for yourself," working with others you don't agree with, holding true to one's beliefs, and managing "aggravating situations" with others. Again, the experience seemed to reinforce beliefs about leadership as it appears the growth mindset toward leadership was largely established.

Interviews led to some conflicting findings concerning emotional control. First, controlling emotions was not a highly reported outcome, at least explicitly. Students talked about the value of remaining positive and staying calm. However, when it came to conflict resolution several students shared that, due to the short nature of the course, both male and female students talked about open arguments. "We had arguments…we had ups and downs with everybody" said one female student. Another female student said,

"sometimes we were really good and then we would have arguments and it would be really bad." Several male students admitted they got into heated arguments with peers over food, directions, or personality conflicts. While positivity and remaining calm were lessons, for many, the confrontational behaviors that emerged under pressure did not reflect mature emotional control. These conflicting findings are interesting as quantitative measures found that students held moderately strong growth mindsets toward emotional control. Students may believe they can control their emotions but many have not yet fully developed the appropriate self-regulation strategies.

Sense of Belonging to C5 and School

Conflicts did arise during the OAE experience, but interviews made it clear that students felt that it was a positive experience that allowed them to deepen social relationships with peers and reinforce their connection to C5. A common theme that arose from interviews was that students believe that "C5 is family." Students talked about the close friendships made at C5, especially during the summers at residential camp. When asked about the difference between her friendships at school and friendships at C5, a Texas student explained, "They are completely different. [At school] we're not as close. Here we're like family. We tell each other everything even though we don't see each other every day." Similarly, a C5 LA student cited the reason they were close was "because you go through so much together. We've seen each other struggle…So you're comfortable around them and they are not judgmental." The C5 program brings students together with similar backgrounds and college aspirations and fosters a supportive community.

Students talked about the OAE experience as a chance to build on existing relationships in a way that is similar to how the trip allowed them to build on existing leadership skills. A Texas student talked about how he was grateful to have a bonding experience with a group he had known for years. “Being with C5 for three years so far…we’ve grown as a family so it’s been fun to hang out with these guys for a week.” Others were able to make stronger connections to peers they did not know as well. An LA student explained that “it was really nice because we had some similarities and some fears that were exactly the same. We talked about our problems.” She continued to say, “we made it [through the trip] together and it was pretty fun getting to know all the people I didn’t know or talk to at all.”

Discussion

The qualitative findings provide some context for understanding how particular NCFMI measures changed or did not change following the OAE experience. Certainly, the backcountry experience gave students opportunities to encounter and overcome adversity, contributing to improved self-efficacy for dealing with challenge. Additionally, the small group nature of the course provided a setting where teamwork and seeking help from others were encouraged, perhaps changing personal self-efficacy for help-seeking behavior. Interviews also shed some light on how the entire C5 program influences student mindsets toward leadership as a skill as well as how C5—during the OAE experience and in programs and activities in the first two years—cultivates a sense of belonging among students. The following sections will put these findings into perspective in regard to existing research on noncognitive factors, OST experiences including OAE, and college access programs.

First, it is important to revisit the opportunity gap, the central problem of interest. Students from low socioeconomic backgrounds simply do not have access to the same opportunities as students from families with more resources (Putnam et al., 2012). The C5 Youth Program provides its students with a series of experiences that may otherwise be financially out of reach for its students. In the years leading up to the OAE trip examined in this study, students attend residential camp in the summers following 7th and 8th-grade and participate in bimonthly enrichment activities. This OAE experience was just one of many OST experiences provided by C5 that allowed students to build confidence, self-efficacy, positive mindsets, and build a community of like-minded individuals with similar aspirations. All of these outcomes align with existing research on OST enrichment activities (cf. Durlak et al., 2011, 2010).

It is almost certain that the noncognitive factors of interest in this study were influenced by a series of positive experiences associated with C5 participation. One of the research questions this study sought to answer was whether participation in this OAE experience related to changes in student self-efficacy beliefs, mindsets, and sense of belonging, if so, understanding how these changes occur. Certainly, one cannot discount the significance of the entirety of the C5 experience, from 7th-grade to college, as it is a series of quality experiences that contribute to positive student trajectories or *developmental cascades* (see Masten & Cicchetti, 2010). Precourse measures of self-efficacy, growth mindsets toward leadership and emotion control, and sense of belonging to C5 were arguably high. However, it appears that intense and intentionally designed OAE experiences can contribute to that overall positive trajectory as part of a larger college access program.

In this study, the OAE experience, though only a week in length was associated with increases in self-efficacy for dealing with challenge and self-efficacy for using help-seeking behavior. Evidence from student interviews confirmed findings from other studies that found OAE participation related to functioning well in difficult circumstances, practicing leadership-related competencies, working collaboratively and cooperatively, and navigating the social structure of the group (e.g., Hattie et al., 1997; Sibthorp, et al., 2008; Sibthorp & Jostad, 2014). The physical, mental, and interpersonal challenges of backpacking in a remote environment provided real and sometimes raw experiences where students had to draw upon their inner resources as well as the support of peers and instructors. As a result, students left with benchmark challenge experiences as reference points for the future. The value of strong self-efficacy beliefs for dealing with challenge cannot be understated. These beliefs are associated with student persistence and the ability to work toward long-term goals—factors important for college success (Duckworth et al., 2007; Farrington et al., 2012). Similarly, the OAE experience allowed students to see the importance of seeking help when needed. As nonexperts in the backcountry, they had to seek help from others. In times of homesickness, they realized they could reach out. In either scenario, students had opportunities to see that seeking support did not equate to weakness. Such help-seeking behaviors are essential in college, especially among first-generation college students who may be embarrassed to seek help or not know how to receive support (Roderick, Nagaoka, & Coca, 2009; Yeager & Walton, 2011).

Social belonging is also important for college success and is often a priority of college access programs as well as first-year college programming (Shechtman et al.,

2013; Walton & Cohen, 2011). While quantitative measures of sense of belonging to C5 did not show any statistical difference pre and postcourse, interviews revealed that the OAE experience helped students reinforce and celebrate existing relationships while building new friendships. A sense of belonging within an academic community is associated with student motivation and positive academic behaviors (Dweck et al., 2011; Farrington et al., 2012; Walton & Cohen, 2011). As an intact group, it is likely that students were able to carry friendships and their attitudes toward C5 from a residential camp and activity context to the OAE experience, and vice versa (cf. Bell et al., 2014; Gass & Priest, 2006). C5 is clearly providing a community, one that many students consider a family. The difference in sense of belonging between C5 and school may suggest that students feel that C5 provides the support, camaraderie, and shared academic aspirations that are lacking from their respective schools.

Implications and Future Research

This study provides additional evidence that OAE experiences can contribute to the development of noncognitive factors and be an effective component of a larger college access program. OAE offers many of the desired outcomes associated with quality OST enrichment opportunities, specifically in areas of self-efficacy that can transfer to other school and life contexts. It also offers a mechanism to create and reinforce relationships, creating or bolstering a sense of belonging within an academic community. As debates continue as to how to close the opportunity gap, OAE may be one option worthy of consideration for college access programs and educational policy makers.

There continues to be a need for more research on the connection between OAE participation and the development of noncognitive factors. A weeklong intervention can make an impact but student development occurs over years and a multitude of experiences. A future study may want to look at how participation in college access programs like C5 influence noncognitive factors over a longer time frame. For C5 students, it was clear that their mindsets toward the malleability of leadership ability and emotional control were well established prior to the OAE experience. Student sense of belonging to C5 was also stable. A longitudinal study that follows students from the beginning of program participation may reveal how particular noncognitive factors develop within a larger system. More complex research designs that include additional variables unavailable in this study may also provide additional insight on relationships between noncognitive factors within-subject, between-subjects, and between-groups predictors (e.g., family income, GPA, other OST activities). Following a cohort of students over time would also allow opportunities to collect rich qualitative data to understand how student development occurs.

Finally, it will be essential to understand the long-term impacts of an OAE experience within a college access program. Future research will want to see if gains from OAE participation last beyond the end of the course.

Limitations

This study was limited by its design, population, and unique nature of the intervention. First, a lack of a control group and the unique characteristics of C5 and a NOLS course make it hard to generalize to a larger population. Second, characteristics of the sample limited the use of three level models. There were only 20 expedition groups in

this sample. A larger number of expedition groups would have allowed for a deeper exploration of group-level factors (Kwok et al., 2008; Raudenbush & Bryk, 2002). Third, there were noticeable ceiling effects for mindset measures—especially the mindset for leadership development limiting the ability to notice growth. Additionally, it should be acknowledged that the life experience of the researcher likely influenced the coding interpretation of student narratives and a team of coders with various experience may have helped reduce single-coder bias.

Conclusion

The opportunity gap is a real concern for those who wish to address disparities among socioeconomic groups. Students with the least resources do not have access to experiences that can support their development and ultimately their educational and career aspirations. While it is important to reduce disparities in the quality of classroom education, we must also find ways to provide quality OST experiences for all students. On the whole, college access programs like C5 recognize that students from low socio-economic backgrounds need academic support, help navigating the path to college, and access to experiences that help students understand themselves, their capabilities, and their place within an academic community. This study looked at one—just one—of many experiences within C5's programming: a challenging OAE experience. It found that a well-designed OAE experience can contribute to the broader goals of a college access program. Specifically, OAE can build self-efficacy for dealing with challenge and bolster student self-efficacy for help-seeking behavior such as noncognitive factors associated with student success. Moving forward, it will be important to understand how college access programs can use a series of quality experiences to bridge the opportunity gap,

propelling high-potential students with low SES toward success in higher education and beyond.

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CHAPTER 4

DOES OUTDOOR ADVENTURE EDUCATION SUPPORT COLLEGE READINESS? LASTING IMPACTS ON NONCOGNITIVE FACTORS

Abstract

This longitudinal study examined the lasting impact of a weeklong outdoor adventure education (OAE) experience on adolescent students involved in a college access program. Specifically, this study sought to understand the effects of time and context on select noncognitive factors associated with OAE participation: self-efficacy for dealing with challenge and using help-seeking behavior, mindsets toward leadership development and emotional control, and sense of belonging. Findings from this mixed methods study revealed that self-efficacy for dealing with challenge and using help seeking behavior increased from pre to postcourse but regressed to precourse levels months after the experience. In addition, students reported high levels of sense of belonging to the college access program in comparison to school. Qualitative analysis of interviews revealed that the OAE experience allowed for social bonding and an opportunities to push through adversity. However, time and changes in context following the experience made maintaining self-efficacy gains difficult.

Introduction

A college education is linked to higher incomes, greater financial stability, and other positive social indicators (Hout, 2012). Yet there continues to be a significant education attainment gap linked to disparities in family income. A recent longitudinal study from 2002 to 2012 found that only 14% of students from low socioeconomic backgrounds completed a bachelor's degree as compared to 60% of those with high socioeconomic status (SES; Kena et al., 2015). This gap in educational attainment can be partially attributed to overall college readiness. Students with low SES are less likely to be equipped with the four key components of college readiness: learning strategies, academic content knowledge, noncognitive factors related to self-regulation and motivation, and "college knowledge" or the skills and information needed to navigate the pathway to and through college (Conley, 2015; Roderick, Nagaoka, & Coca, 2009). College access programs work with students from low socioeconomic backgrounds, often over several years, to improve overall college readiness through academic support, mentoring, college tours and assistance with college applications and financial aid, and experiential opportunities to build key intrapersonal and interpersonal competencies (Glennie, Dalton, & Knapp, 2014). In recent years, particular attention has been paid to these intrapersonal and interpersonal competencies—or noncognitive factors—as they have been found to be strongly predictive of long-term student success (Farrington et al., 2012).

College access programs use a variety of out-of-school-time (OST) activities including residential camps, service-learning opportunities, and other experiences to help students develop attitudes, beliefs, and behaviors associated with student success (Harvill

et al., 2012). One promising OST experience used by college access programs is outdoor adventure education (OAE). Outcomes from OAE align with important noncognitive factors including self-efficacy, self-confidence, persevering through adversity, sense of belonging, and beliefs about personal potential (e.g., Hattie, 2009; Sibthorp, Furman, Paisley, & Gookin, 2008). The use of OAE by college access programs could be one route to improve college readiness among students with low SES. Yet there remains little research on the long-term impacts of OAE within the context of a college access program.

To address this research gap, this study sought to understand how OAE experiences among a cohort of students in a college access program relate to the development and retention of key noncognitive factors. Specifically, this study used a mixed methods approach to examine noncognitive factors that align with OAE outcomes: self-efficacy for dealing with challenge, self-efficacy for using help-seeking behavior, sense of belonging within a college access program and at school, and mindsets toward leadership development and emotional control. It was of particular interest to see if noncognitive factors changed in the months following OAE participation and what may have influenced any changes. Findings build on a related research project that examined the development of noncognitive factors at the end of a particular OAE experience which found participation related to increases in self-efficacy for dealing with challenge and self-efficacy for using help-seeking behavior (Richmond, 2016a). Results from this longitudinal study will be of interest to policy makers, educators, and program managers as they look at possible programming that can improve overall college readiness.

Noncognitive Factors and College Readiness

Recent research in education acknowledges the importance of noncognitive factors for college readiness. Noncognitive factors are intrapersonal and interpersonal skills, beliefs, attitudes, and behaviors that influence student motivation and perseverance but cannot be measured directly with traditional academic assessments (Dweck, Walton, & Cohen, 2011; Heckman & Kautz, 2013; Heckman & Rubinstein, 2001).[3] In addition to core academic skills, content knowledge, and knowledge about navigating a route to and through college, noncognitive factors like persistence, self-efficacy, beliefs about potential, self-awareness, help-seeking, and social skills are considered critical for college readiness (Conley, 2014; Farrington et al., 2012; Shechtman et al., 2013). What is most encouraging to educators is that noncognitive factors may be more predictive and more malleable than other variables related to student success like IQ (Duckworth, Peterson, Matthews, & Kelly, 2007; Dweck et al., 2011).

Noncognitive Factors and Out-of-School-Time Experiences

Noncognitive factors are often developed in the extensive amount of time that students spend outside of school. OST enrichment experiences including sports, clubs, the arts, volunteering and other extracurricular activities provide opportunities for students to explore their identities, build competencies and self-efficacy, establish positive social relationships, and practice leadership, collaboration, and teamwork (Durlak, Weissberg, & Pachan, 2010; Farb & Matjasko, 2012; Feldman & Matjasko,

[3] Though the term "noncognitive factors" seems odd for factors that most certainly involve cognition, it is a term that is embedded in educational policy and literature (see Farrington et al., 2012; Shechtman et al., 2013). To avoid confusion and maintain consistency with related literature, the term "noncognitive factors" is used in this paper.

2005; Larson, 2011; Putnam, Frederick, & Snellman, 2012). The informal, nonacademic nature of OST activities allows students to work through developmental tasks, build social capital, and reevaluate beliefs about themselves and their potential in ways that are difficult if not impossible to replicate in traditional classrooms (Eccles & Templeton, 2002; Farb & Matjasko, 2012; Shernoff & Vandell, 2007).

Unfortunately, there is a widening "opportunity gap" where students from low SES are much less likely to participate in OST activities than their peers from high income homes (Putnam et al., 2012). Since the early 1970s, participation rates in extracurricular enrichment activities among students from low socioeconomic backgrounds has decreased while participation rates among students with middle or high SES has increased (Duncan & Murnane, 2011; Putnam et al., 2012). As a result, many high potential students from low socioeconomic backgrounds are missing out on the benefits of OST activities that could support their overall readiness for college.

College Access Programs, OST, and OAE

College access programs seek to support students from low socioeconomic backgrounds by offering academic support, mentoring, guidance during the college selection and application process, and access to experiences that otherwise would be out-of-reach financially (Glennie et al., 2014; Harvill et al., 2012). Research has found that these programs are largely successful in improving academic achievement and rates of college admission among underrepresented groups (Cates & Schaefle, 2011; Glennie et al., 2014; Harvill et al., 2012). Many programs work with students over several years and attempt to bridge the "opportunity gap" by providing access to residential summer camps, tutoring, college visits, and experiential learning opportunities.

Some college access programs incorporate OAE experiences. Programs use OAE so that students can build and practice leadership skills while also experiencing personal growth through physical and emotional challenge (C5 Foundation, 2015; Jostad, 2013). OAE experiences may incorporate outdoor activities like backpacking in remote environments where students learn technical skills and build intrapersonal and interpersonal competencies. The inherent qualities of OAE—a small community, a dynamic environment, ambiguity, and real or perceived risk—provide a powerful setting for student learning and development (Ewert & Sibthorp, 2014). Perhaps not surprisingly, OAE research finds outcomes that align with noncognitive factors tied to college readiness. Participation is related to the development of self-confidence, self-efficacy for dealing with challenge and adversity, and self-regulation strategies as well as changes in life perspective and personal potential (e.g., Goldenberg & Soule, 2011; Hattie, 2009; Sibthorp et al., 2008; Widmer & Taniguchi, 2014). The intense nature of OAE experiences also promotes positive social outcomes, and these outcomes are particularly powerful when participants return to the common application environments like school or work (Bell, Gass, Nafziger, & Starbuck, 2014; Gass & Priest, 2006; Richmond, 2016b).

This study focused on noncognitive factors found consistently within OAE research. These include self-efficacy, social belonging, and mindsets related to personal growth and potential.

Self-Efficacy

Self-efficacy, a major construct within social cognitive theory, refers to an individual's beliefs related to their ability to complete a task in a given domain (Bandura, 1977, 1997). OAE affords opportunities for participants to encounter and manage

physical and emotional challenges and work collaboratively (Sibthorp & Jostad, 2014; Sibthorp, Paisley, & Gookin, 2007). As a result, students can build beliefs about themselves through mastery experiences, vicarious experiences, social persuasion (e.g., encouragement), and physical and emotional responses to a given situation. Bandura (1997) identified these as four key sources of self-efficacy. Being able to manage setbacks and adversity (i.e., self-efficacy for dealing with challenge) and a willingness to seek help when needed (i.e., self-efficacy for using help-seeking behavior) are considered critical for success in college, especially among students with low SES or those from traditionally marginalized groups (cf. Pellegrino & Hilton, 2012; Roderick et al., 2009).

Sense of Belonging

A *sense of belonging* is another noncognitive factor associated with OAE that is also related to student success and college readiness. Sense of belonging involves beliefs about being welcomed and fitting in within a community (Goodenow & Grady, 1993). OAE experiences are associated with a stronger sense of belonging as participants work toward common goals while sharing challenges and peak experiences (Sibthorp & Jostad, 2014). Sense of belonging is important within an academic or learning community as it is those with a high sense of belonging that are more likely to stay motivated and experience less unnecessary social stress (Farrington et al., 2012; Walton, Cohen, Cwir, & Spencer, 2012). This construct is of particular interest in this study to understand how student perceptions of belonging to school and their college access program may differ.

Mindsets

Mindsets refer to beliefs of the malleability of ability or skill (Dweck et al., 2011). Research has found that those who believe that intelligence and ability are changeable—

those that hold an *incremental theory* or *growth mindset*—are more likely to exert effort and see performance gains as opposed to those with *entity theories* or *fixed mindsets* (Blackwell, Trzesniewski, & Dweck, 2007; Snipes, Fancsali, & Stoker, 2012). OAE offers opportunities for participants to practice leadership skills and exert emotional self-regulation strategies and potentially reevaluate their own beliefs (Sibthorp et al., 2015, 2008). It was of interest to understand how OAE participation was related to student mindsets toward leadership development (i.e., are leaders made or born?) and emotional control (can one learn to control their emotions?) and how mindsets change over time.

Lasting Effects of OAE Participation

While there is evidence that links OAE participation to the development of key noncognitive factors, research on the lasting effects of OAE is mixed. Sibthorp and colleagues (2008) conducted a qualitative study of alumni from the National Outdoor Leadership School (NOLS) and respondents reported that participation contributed to their ability to function under difficult circumstances, the ability to serve in a leadership role, an ability to work as a team member, self-confidence, and changes in life perspective. However, quantitative measurements with a different subset of NOLS students found that gains in pro-social behavior regressed to precourse levels several months after the end of an OAE experience (Furman & Sibthorp, 2014). These mixed results have led some scholars (e.g., Brown, 2009, 2010; Sibthorp & Jostad, 2014) to reconsider measuring transfer of learning, perhaps shifting attention to groups of OAE students that share the same application environment like school or work. Brown (2010) argues that:

> it is perhaps time to be more proactive in engaging with students and their communities beyond the immediate outdoor experience so that change is supported in communities that provide a supportive and connected network in the ongoing work of learning. What OAE is good at is creating communities of practice with attributes that are (generally) valued by the broader community…[and] connections to like-minded communities beyond the OAE experience…may help learners develop identities in activity and action which are long-term and sustainable. (pp. 19-20)

Indeed, there is promise that OAE participation with intact groups of students can support outcomes over time. There has been some research on the use of OAE with work groups and college orientation programs (e.g., Bell et al., 2014; Gass & Priest, 2006), which found that participation was related to the development and maintenance of collaboration skills and positive interpersonal relationships. More recently, Richmond (2016b) looked at an all-girls school that uses a series of OAE experiences in 7th, 9th, and 11th-grade and determined that the shared school environment supported the retention of social, intrapersonal, and leadership outcomes from the OAE trips. These findings align with educational research that points to the importance of a supportive application environment, opportunities for practice, ongoing mentorship, and reinforcement of relevant skills in the long-term retention of learning outcomes (Burke & Hutchins, 2007). Unlike most OAE programs where students come together for the specific purpose of participating in the course, students from intact groups are able to continue relationships after the end of the course and refer to a common set of experiences and lessons.

College access programs may be another context in which OAE outcomes can be supported beyond the end of the outdoor experience, particularly the variables of interest in this study. Like college orientation programs and schools that use OAE, college access programs offer opportunities for lasting social connections and reinforcement of key

lessons. However research on the use of OAE with intact groups including college access programs is extremely limited (Sibthorp & Jostad, 2014).

Study Purpose

Therefore, the purpose of this study was to examine how time related to the retention or continued development of particular noncognitive factors in the weeks and months following participation in an OAE experience offered as part of a college access program. In addition, the study explored how students transfer learning from the OAE experience to other contexts. The study tracked a set of noncognitive factors that align with OAE outcomes: self-efficacy for dealing with challenge, self-efficacy for using help-seeking behavior, sense of belonging in learning communities, mindsets toward leadership development, and mindsets toward emotional control.

Research Questions

Given how noncognitive factors were operationalized for this study, this paper sought to address the following research questions (RQ):

RQ1: Are changes to noncognitive factors related to OAE experiences retained weeks and months after the end of the experience?

RQ2: What influences changes (or lack of change) to noncognitive factors?

RQ3: How do students apply lessons from their OAE experiences to other contexts like school?

RQ4: How does an OAE experience contribute to student development within the context of a college access program?

Findings from the study will add to existing literature on OST activities and OAE, specifically providing more insight on how to best use such experiences within the context of college access programs.

Methods

This study sought to gauge the long-term impact of an OAE experience on a particular set of noncognitive factors among students involved in a college access program. In order to understand any OAE-related outcomes in a manner that recognized the lived experiences of students, this study employed a longitudinal mixed-methods embedded quasi-experimental design. This design uses both quantitative and qualitative measures over several time points, with each approach informing findings from the other (Creswell & Plano Clark, 2011). In this study, the quantitative approach was the dominant component to determine if particular noncognitive factors changed over time. Qualitative findings were used to help explain why measures did or did not change while also providing an opportunity to identify emerging themes that may not have been captured in quantitative measures, thus resulting in a dominant-less dominant embedded design (Johnson & Onwuegbuzie, 2004). Within this approach,

> the purposes for including the qualitative data are tied to but different from the primary purpose of the experiment to assess whether a treatment had a significant effect. This distinguishes the embedded design from a convergent design where the researcher is using both methods to address a single overarching question. (Creswell & Plano Clark, 2011a, p. 91)

Participants

Participants for this study were drawn from the C5 Youth Program. C5 works with high-potential students from low-income homes, providing guidance, academic

support, and mentorship as students move through middle school, high school, and the transition to college (C5 Foundation, 2015). C5 operates programs in urban centers in Massachusetts, Georgia, Texas, and California. Programming includes residential summer camps (7th- and 8th-grade), college tours, community service, and other activities during the school year. Nearly all C5 students participate in an extended OAE experience in the summer following 9th-grade. This experience is framed as a transition into the final two years of the C5 program that focuses more on college preparation. These intensive OAE experiences take place in Washington, Idaho, Wyoming, and Upstate New York, where students from the same C5 program backpack in remote locations. Students are divided into single sex groups of 8-12 and travel with 2-3 instructors and a C5 chaperone.

The C5 OAE experience is run in collaboration with the National Outdoor Leadership School (NOLS). NOLS operates multiple domestic and international branches that offer courses in backpacking, sea kayaking, mountaineering, rock climbing, and other skill areas. Curriculum also emphasizes leadership development and intrapersonal growth (Gookin & Leach, 2009). In addition to offering courses to the general public that range in length from a few weeks to several months, NOLS designs custom courses for organizations like C5.

Quantitative Measures

The noncognitive factors measurement instrument (NCFMI) was used to gauge student beliefs and mindsets. In this study, the NCFMI was administered three times: prior to the course, upon course completion, and several months after the end of the course completion. The NCFMI includes measures adapted from other instrumentation and capture student beliefs regarding self-efficacy for dealing with challenge

(SE_CHLNG), self-efficacy for using help-seeking behavior (SE_HELP), sense of belonging at school (BEL_SCHOOL) and C5 (BEL_C5), mindsets toward leadership development (MIND_LEAD), and mindsets toward emotional control (MIND_EMO).

Self-efficacy measures included an 11-item SE_CHLNG scale (α=.89) and a 6-item SE_HELP scale (α=.91). The scales were created using self-efficacy scale guidelines and adapted several items from the coping efficacy scale (Chesney et al., 2006). Each scale used a Likert-type scale ranging from 0 ("I cannot do it at all") to 10 ("I am highly confident I can do it"). SE_CHLNG items that gauged student beliefs regarding statements like "Break a difficult problem down into smaller parts" and "When I am struggling with something, I can stop myself from being upset by unpleasant thoughts." The SE_HELP included statements regarding positive help-seeking behavior (e.g., "Go to teachers, instructors, counselors, or mentors when I feel overwhelmed with something and want to quit").

Each sense of belonging scale included 7 items with questions adapted from the Psychological Sense of School Membership (PSSM, α >.80; Anderman, 2003; Goodenow & Grady, 1993). Scales included positively and negatively worded statements regarding belonging in each context, with negatively worded items reverse coded. The Likert-type scale responses ranged from 1 ("Totally False") to 8 ("Totally True"). Example statements include "I feel like a real part of my school" and "It is hard for people to be accepted at C5". Statements for each scale were identical but referenced different social contexts (school and C5). For this sample, BEL_C5 and BEL_SCHOOL had internal consistencies of .74 and .75, respectively.

Mindset scales were adapted from scales on incremental (growth mindset) and entity theories (fixed mindset; Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 2006; Tamir, John, Srivastava, & Gross, 2007). Each 4-item scale included two questions regarding incremental theories and two items on entity theories, rated on a Likert-type scale from 1 ("Strongly disagree) to 8 ("Strongly agree"), with statements on entity theories reverse scored. The MIND_LEAD scale includes statements like "If they want to, people can change their leadership ability" and similar scales reported levels of reliability ranging from $\alpha = .62$ to .94 (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2012; Werth, Markel, & Förster, 2006). The MIND_EMO scale has statements such as "You have a certain amount of control over your emotions, and you can't really do much to change it". Tamir et al. (2007) used a similar 4-item scale measuring mindsets toward emotional control and reported a Cronbach's alpha of .75. The two scales had similar statements modified for the particular mindset of interest, yet had lower internal consistencies in this sample (.54-.63).

Qualitative Interviews

A total of 26 interviews were conducted in the months following the OAE experience. Interviews were conducted in a semistructured format with follow-up questions used to gain clarity and insight. Interviews had students reflect on their OAE experience, discuss lasting impressions, lessons and outcomes, and talk about the role that C5 plays in their lives. Most interviews coincided with the final administration of the NCFMI, which took place during an organized C5 gathering. Interviewees were selected from a group of students identified by C5 staff as having a range of experiences and opinions. In-person interviews took place at C5 locations in Texas ($n = 6$) and New

England (n = 9) and additional interviews were conducted by phone to include students from Georgia (n = 3) and Los Angeles (n = 8). There were an equal number of male and female interviewees.

Data Analysis

Prior to analysis, data went through standard data screening and cleaning. Multilevel models (MLMs) were then used to analyze data collected from the NCFMI. MLMs are appropriate for analyzing nested data as they adjust for nonindependence of observations, unbalanced data, and unstructured variance-covariance structures (Raudenbush & Bryk, 2002). Analyses were run with HLM Student Version 7.0 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). MLMs allow for the inclusion of time as a continuous variable making them useful for longitudinal studies (Singer & Willett, 2003). To make the findings easier to interpret, data were examined piecewise, where pre and postcourse data were analyzed in one set of MLM models and the postcourse and follow-up data were analyzed in second set of models (Kwok et al., 2008). A complete analysis of pre and postcourse data was presented in related paper (Richmond, 2016a).

Data were analyzed using three level models to consider separate variance for time (within subject), person (between subjects), and group (between groups). Prior to including predictors in each model, a baseline model was created without predictors for each outcome variable. In this model, t represents time in weeks, i represents individuals, and j is groups.

Level-1 Model (Within Subject)

$$\text{OUTCOME}tij = \pi 0ij + etij$$

Level-2 Model (Between Subjects)

$$\pi 0ij = \beta 00j + r0ij$$

Level 3 Model (Between Groups)

$$\beta 00j = \gamma 000 + u00j$$

An intraclass coefficient (ICC) was calculated for each model. Two level models were used if the group level variance accounted for less than 10% of total variance in the three level model (Raudenbush & Bryk, 2002). Final models then included time in weeks as a level-1 predictor and each model controlled for gender at level-2.

Level-1 Model

$$\text{OUTCOME}tij = \pi 0ij + \pi 1ij*(TIME\_WKStij) + etij$$

Level-2 Model

$$\pi 0ij = \beta 00j + \beta 01j*(GENDER\_Mij) + r0ij$$
$$\pi 1ij = \beta 10j$$

Level-3 Model

$$\beta 00j = \gamma 000 + u00j$$
$$\beta 01j = \gamma 010$$

Quantitative findings from follow-up data were then interpreted based on findings from pre and postcourse data. Analysis focused on the relationship between time and NCFMI measures in the months following completion of OAE experiences.

Student interviews were recorded and then transcribed. Transcripts were then coded in a three stage process involving open, focused, and axial coding (Saldana, 2013). From this coding process, themes and connections between topics were identified and

analyzed to provide a better understanding of quantitative findings, with interpretations vetted among researchers with qualitative research experience.

Findings

The final sample for this study included 102 C5 students with matched data for all three waves of collection. A total of 20 separate courses went out into the field from NOLS branches in Washington, Idaho, Wyoming, and the Adirondacks of New York. Each course involved seven days of backcountry travel and leadership curriculum. See Table 4.1 for sample descriptives.

Quantitative Results

This longitudinal data set was analyzed using a pairwise approach where pre and postcourse data were analyzed in one set of MLMs and the postcourse and follow-up were analyzed in a second set of MLMs. Prior to analyses, data went through standard screening and cleaning procedures. All models were reduced to two level MLMs because level-3 variance accounted for less than 10% of total variance or level-3 variance became non-significant when gender was included as a level-2 predictor.

Table 4.1: Descriptive statistics of sample

Demographic Group	**%**	**C5 Regional Program**	**n**	**%**
African-American	48.0%	C5 New England	40	35.7%
Hispanic/Latina(o)	37.3%	C5 Georgia	25	26.8%
White	9.7%	C5 Texas	21	17.3%
Asian-American	2.0%	C5 Los Angeles	16	20.2%
Native Hawaiian/Pac. Islander	2.0%			
Other	1.0%	n =	102	
Female	57.8%	M_{age} =	14.9	
Male	42.2%			

In the analysis of pre and postcourse data, participation in the OAE experience was significantly related to increases of mean scores for SE_CHLNG ($p < .001$), SE_HELP ($p < .001$), and BEL_SCHOOL ($p < .05$). In addition, gender was a significant predictor at level-2 with females having lower scores than males for each of these outcome variables. Finally, both pre and postcourse means for BEL_C5 were higher than BEL_SCHOOL at the 95% confidence level. Level-1 and level-2 predictors were non-significant for the other outcome variables.[4]

Follow-up instrumentation was administered nine to 19 weeks after the end of the OAE experience (M_{weeks}= 15.3). The level-1 predictor of time in weeks was significantly related to mean scores for SE_CHLNG (β = -.05, $t(101) = -4.94$, $p = <.001$, $Pseudo\ R_{\varepsilon}^2$ = .19, ICC = .44) and SE_HELP (β =- .06, t(101) = -3.70, p = <.001, $Pseudo\ R_{\varepsilon}^2$ = .11, ICC = .35). For SE_CHLNG, student self-ratings decreased by .05 points for every week past the end of the course, accounting for 19% of the variance at level-1. Thus, 15 weeks after the course, the average score would decrease by .75 points on an 11-point scale. There is a similar interpretation for SE_HELP where student self-ratings decreased by .06 for every week past the course, with time in weeks accounting for 11% of the variance at level-1. Self-identified gender was a significant level-2 predictor of self-efficacy scores with females having an average SE_CHLNG score 1.14 points lower than males (t(101) = -5.05, p = <.001, $Pseudo\ R_{\varepsilon}^2$ = .21) and a SE_HELP score 1.21 points lower than males (t(101) = -3.325, p = <.001, $Pseudo\ R_{\varepsilon}^2$ = .08). Figure 4.1 displays mean scores showing that from postcourse to follow-up SE_CHLNG and SE_HELP, showing an overall trend of scores returning to baseline precourse ratings.

[4] For complete analysis of pre and postcourse data, see Richmond, 2016a.

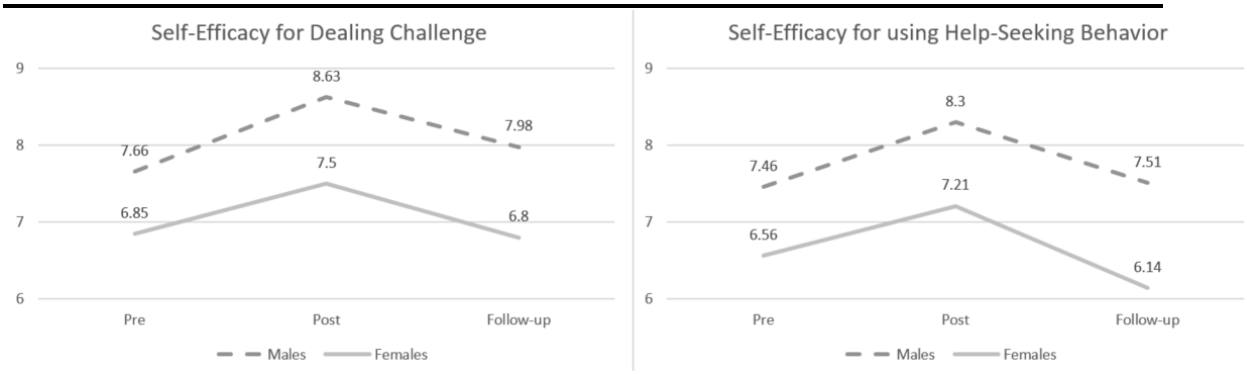

Figure 4.1: Self-efficacy mean scores

One additional outcome measure had significant level-1 and level-2 predictors from postcourse to follow-up. Time in weeks was associated with changes to MIND_LEAD (α=.54, β = -.015, $t(101) = -2.02$, $p = <.046$, $Pseudo\ R_{\varepsilon}^{2} = .03$, ICC = .42), where each week following the course results in a decline of .015 points on 8-point scale, though the percentage of variance explained is very small and just reached statistical significance (see Figure 4.2). The level-2 predictor of s was not significant.

Level-1 and level-2 predictors were not significant for other NCFMI measures from postcourse to follow-up. Yet, similar to precourse data, sense of belonging to C5

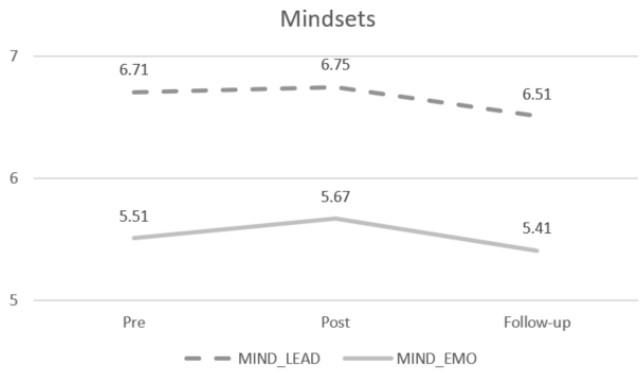

Figure 4.2: Mindset measures mean scores

was higher than sense of belonging to school for postcourse (BEL_C5, *M*= 7.03, 95% CI [6.81, 7.24]; BEL_SCHOOL, *M*= 6.13, 95% CI [5.89, 6.37]) and follow-up measures (BEL_C5, *M*= 7.00, 95% CI [6.77, 7.22]; BEL_SCHOOL, *M*= 5.97, 95% CI [5.72, 6.22]). See Figure 4.3.

Qualitative Findings

In this particular mixed methods design, qualitative data was analyzed to help understand and explain quantitative findings. Over 13 hr of interviews were transcribed, coded, and analyzed to create a more complete picture of what students were able to apply from the OAE experience to home and school as well as what may have been lost in the intervening time. These interviews also provided some insight as to how this particular OAE experience fit within the larger system of the C5 program.

The OAE experience was still present in the minds of students interviewed for this follow-up study. Students quickly recalled challenging peak ascents, braving rainstorms, struggling with the weight of packs, and adjusting to a new environment. Interviewees also acknowledged how the shared OAE experience brought expedition

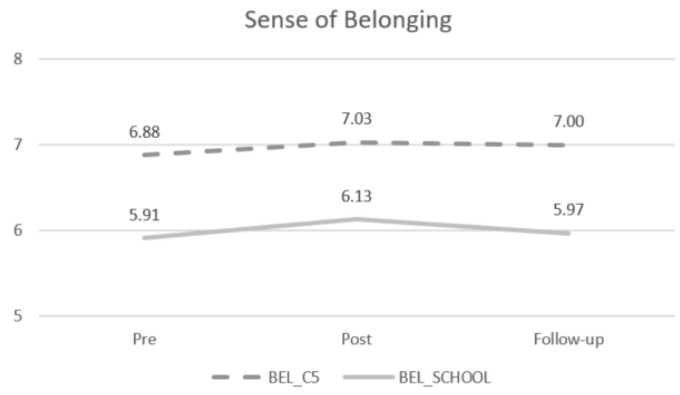

Figure 4.3: Sense of belonging mean scores

groups closer together, contributing to their overall C5 experience. Many reflected that the experience taught them the importance of perseverance, positive attitudes, adaptability, and leadership competencies like communication and self-awareness. Yet, students also talked about how maintaining relationships with friends from C5 was sometimes difficult, also noting that their school environment was not as supportive as their C5 community.

Influence of Time and Context on Self-Efficacy

Interviews revealed that time and context were related to several of the outcomes of interest in this study. Of particular note were the significant changes in social context. Following the OAE experience many students went home and did not see their fellow C5 students for two to four months. When asked about her relationships with her expedition partners, a student from Los Angeles remarked "this is the strongest our relationships have been…because of what we lived out there." Yet when asked whether she has kept in touch she conceded that "well…social media helps [but] it's not really a text everyday thing but definitely they are going to be there." These quotes summarized the sentiments of students from each location where students may be spread across different schools or thrown back into a large high school environment. There were certainly cases of students talking about having one of more close friends from C5 at their school but this was rare. For most, reconnecting with their C5 friends had to wait until the next organized event. A supportive C5 community was still there but not on a daily basis as it was during their OAE experience.

The differences in social context from C5 to school had an effect on self-efficacy for using help-seeking behavior. During their OAE experience, students saw the benefits

of collaboration and seeking help from peers and instructors. “I learned I could always go to my team and the instructors were there to help,” reflected a male student from Texas. Yet, the change in context from C5 to school shifted student beliefs on help-seeking. Students talked about the importance of seeking help as they continued on their pathway to and through college but few talked about specific instances of seeking help in the school environment since the OAE experience. For example, a Texas male said he was more confident in getting help but had not yet done so. “Before this year, I wouldn't ask for help,” he said, “but now I think about it, school’s getting more important.” A female student from New England may have summarized the complexities of self-efficacy beliefs in using help-seeking behavior when shifting from a C5 environment to school:

> When I need help with school stuff I'll go to a teacher, get clarification. I'll ask questions. Advocate for myself. When it comes to personal things, I don't really do that, I kind of keep to myself or write in my journal. I don't feel like I have a real support system to actually tell anybody anything about myself. I know it’s weird. When it comes to school things, I get on top of it, but when it comes to me I'm more...

For this student, and likely others, beliefs and attitudes about reaching out for support are influenced by context. The supportive context of the small group during the OAE experience facilitated help-seeking behavior. Yet for many, supportive structures are not as strong in the school setting.

In addition to encouraging help-seeking behavior, the C5 community served as a mechanism of support during times of challenge during the OAE experience. When students were asked how they made it through a hard hiking day or feelings of homesickness, common responses included “we all kept encouraging each other to keep going” and “I always had people there to talk to.” Months later, when discussing dealing with challenge, that supportive social structure found on the trip was clearly lacking in

the school environment. Instead, students made broad connections between pushing through adversity on their OAE experience and the challenges of school, focusing more on the use of internal resources. When asked about lasting lessons, a female student from Los Angeles replied:

> What I took from it was don't give up even when things get hard. Like in senior year—the college application process—I think that's going to be hard. But you can't get discouraged and give up.

It also emerged that most of the challenges of interviewees' school and home lives did not match the intensity or quality of their OAE experience. Instead, they noted how they would reflect on their OAE experience when they did encounter challenges at school or college. While staying positive and persevering were clear overarching lessons, interviews revealed that the challenges in the backcountry and the challenges at home and school were markedly different. Students talked about the physical and emotional challenges they experienced on the OAE experience. When talking about school and the path to and through college, students framed challenges in terms of stress and managing multiple priorities. A female student from New England said,

> "the struggles I had are going to relate to the struggles I'll have in college—the fact that I am not going to have home cooked meals… that I am going to have a hard climb to the top with grades and finals...it's going to be so stressful but I know I can do it."

When considering the upcoming challenges of college, another girl from New England shared.

> I feel like the workload is going to be kind of tough and challenging for me if I don't like pick myself up and change my ways from now on…Keeping track of myself. Making sure I have the time to do the work I need to do.

The preceding quotes were representative of subtle shifts in student attitudes toward dealing with challenge from end-of-course interviews to follow-up interviews.

When reflecting on her OAE experience, a student from New England talked about how the trip taught her that "people will support you… [while you are] supporting yourself." In the application environment at school, students talked more about pushing themselves through adversity and less about drawing on the support of others.

A Holistic View of Program Participation

Interviews revealed the challenges of maintaining gains in self-efficacy from context to context, but these interviews also indicated that C5 students' personal development takes place over the course of several years. In follow-up interviews, students often reflected upon their OAE experience within the larger context of their personal journey in C5. Students from each site talked about how C5 changed them. It was common to hear students say that C5 helped them "become a better leader" and encouraged them to "be more open and less shy". A male student from LA went even further in his assessment:

> C5 will turn around your life. I was kind of a bad kid, I didn't like to listen to rules. I was always getting in trouble... [Since I got in] I've actually stayed away from trouble.

For these students, transformation occurred incrementally over their first two and a half years in the program. The OAE experience was just one component of that transformation.

The OAE experience did offer key lessons on leadership that students identified in the interviews. In particular, students felt that the experience helped them become more aware of their own leadership style. For one student it was encouraging to learn that he did not have to be a loud or demonstrative leader to contribute to group success. He learned that his quiet analytic approach had value. "It opened my mind to say you don't

have to be a specific type of leader," he said, "there are many ways you can lead…there is no set thing."

Yet students also viewed the OAE experience within a larger leadership progression. A female student from Georgia explained:

> Each year they want to challenge us more. They are trying to build up our leadership skills and make us grow as leaders. I feel like that was really the closure for our camp experience. By sending us across the country…that was going to be our last challenge.

This statement also makes it apparent that this trip was one of several quality C5 experiences. The OAE experience was a culminating performance—a final test—that marked the transition into the final two years of C5 that focus more on college preparation.

Students were grateful and appreciative of the community and opportunities afforded by their ongoing participation in C5. Continuing a theme from the end-of-course interviews, students interviewed at follow-up consistently referred to C5 as family. Almost universally, students talked about the supportive nature of C5 and the importance of this community in their lives. In many cases, the shared experiences and culture allowed for deeply personal connections with others. This helped create a community where students felt comfortable to be themselves and an environment that students considered a "safe haven" from pressures of home and school. Table 4.2 includes representative quotes.

This C5 community also gave them opportunities that they might not otherwise be able to access. Students spoke of the fun they had at camp their first two summers. Looking forward, students were appreciative of all the support C5 provides as they create their personal pathways to college. A male student from Los Angeles said, "Without C5,

Table 4.2: C5 as family: Representative quotes

C5 versus School Community	"I think with C5 it's different because we went through different struggles and hard times together, which I think brings people closer. With my friends I have at school...it's just school, there's nothing "hard" about it, or something to cry over or sharing deep moments. With C5 we have those moments, we have a lot of culture together." (Female from C5 LA)
A Place to Be Yourself	"I feel like coming here and being with my brothers and my sisters I can be myself and no one is going judge me on anything that is going on outside because nothing matters out there. The positivity and the love and the care that comes into this building from the time we come in here Friday night to when we leave Sunday morning, it's all positive. No one is going to get judged or anything." (Female from C5 New England)
C5 as a Safe Haven	"It's the definition of family. No matter what is going on in your actual home or what's going on in your life, C5 is always going to be there for you no matter what. It's always your safe haven. And it's never going to leave. Kids come here to camp having problems with home or having problems with school and bullies. But C5 will always be their safe haven...C5 has been that for me for the past three years…I know I can be myself here and I know my ideas are accepted and they are listened to and heard. That's something I don't get out of my school. And that's something I don't get from home. It's something I just get here." (Female from C5 New England)

I wouldn't know how to apply for college, apply for scholarships, financial aid and things like that…I would have never known." Students also shared what they learned on college tours and conversations with C5 graduates attending college. These experiences helped them envision a life in college and direct their goals to that end. More importantly, the diversity of C5 experiences—horseback riding and rappelling at summer camp, leadership lessons and outings throughout the year, information about college, and the OAE experience—helped students develop constructive attitudes toward the unfamiliar. A student from Los Angeles articulated this as one of the primary goals of C5. "With all

of these experiences," she said, "they are trying to get us into new environments where we are not comfortable and have to adapt to the situation."

Discussion

The purpose of this study was to explore the lasting impact of an OAE experience on students involved in a college access program. It found that quantitative gains in self-efficacy for dealing with challenge and self-efficacy for using help seeking behavior associated with participation in the OAE experience regressed to baseline in the weeks and months following the completion of the course. Interviews with students provided some evidence that time and context contributed to changes in self-efficacy. The time between the end of the course and follow-up was significant. Additionally, the social system (i.e., community of learners) present on the OAE experience largely dispersed at the end of the course. When intact, the C5 community encourages help-seeking behavior and social support in challenging situations in ways that students may be unable to replicate in a school environment. However, it may be helpful to evaluate these findings by considering the influence of long-term involvement in the C5 program on student development.

Context played an important role in the retention of gains in self-efficacy. According to Bandura's (1986), model of triadic reciprocality, self-efficacy is influenced by behaviors and contextual factors. In the case of C5 students, school environment is considerably different than the context of the OAE course in terms of social support and the types of challenges. The social support present within C5 was not as present in the school environment, influencing self-efficacy beliefs for using help-seeking behavior and in dealing with challenge. Within C5, students feel comfortable reaching out for help and

receive encouragement and support for peers when facing adversity. However, the change in social support likely triggers changes in behavior and, in turn, self-efficacy. In this study, self-efficacy measures returned to precourse levels. This is consistent with other research in OAE that found changing social contexts related to declines in positive course outcomes like pro-social behavior (Furman & Sibthorp, 2014). Ideally, self-efficacy for dealing with challenge and self-efficacy for using help-seeking behavior would both be highly generalizable to other contexts. But that was not the case in this study. When considering self-efficacy following the OAE experience, students were likely considering their beliefs within the context of their C5 community. Conversely, months following the experience, students reevaluated their self-efficacy based on the context of school and their lives during the academic year.

To reinforce gains in particular noncognitive factors, college access programs like C5 may want to consider meeting with students closer to the completion of culminating experiences like the leadership expeditions in this study. Regular reinforcement and practice are essential for long-term retention of skills, beliefs, and behaviors (cf. Bandura, 1997; Burke & Hutchins, 2007; Sibthorp, Furman, Paisley, Gookin, & Schumann, 2011). This is especially important following short OAE experiences like those in this study, as longer courses tend to have greater impacts on outcomes (Hattie, Marsh, Neill, & Richards, 1997). At the end of the OAE experience, the strong C5 community dispersed and most students returned to school where there was limited daily contact with their peers in the program. Intentional lesson reinforcement did not occur until students reconvened for weekend programming in the fall. This highlights one of the structural limitations of college access programs like C5—a loss of continuity between summer or

weekend programming and school. Research regularly shows that time spent involved in a program is strongly related to outcomes related to college readiness with those programs integrated into schools having the greatest impact (cf. Venezia & Jaeger, 2013). Unfortunately, schools vary in quality and social climate, likely mediating the effects of college access programs.

The value of the C5 social system for students cannot be understated. Both quantitative and qualitative data show a strong sense of belonging within C5. For many students, C5 plays a central role in their lives, providing a "family" where college aspirations and personal development are supported—a safe space to be themselves and find acceptance. In many ways, C5 acts as a surrogate academic community when such a supportive community is absent or lacking at students' schools. For students from traditionally underrepresented or marginalized groups, a sense of belonging is especially important for student well-being and motivation in high school and college (Farrington et al., 2012; Yeager & Walton, 2011). C5 is providing that sense of belonging for its participants during the critical middle school and high school years and establishes a sound template for the type of community its students should seek out when reaching college.

Future research may want to employ a longer time frame to evaluate the impact of college access programs and OAE on noncognitive factors. Qualitative findings allude to a developmental trajectory that occurs over of several years as opposed to weeks and months. A longitudinal approach that follows students for a longer period of time may provide more insight on when and how noncognitive factors develop as students move through a college access program. For example, noncognitive factors like grit and self-

control have trait-like qualities which change gradually (Duckworth & Carlson, 2013; Duckworth et al., 2007). Self-efficacy, as has been discussed, is subject to contextual factors and tends to stabilize over time (Bandura, 1997). A longer time frame of data collection would also allow for an understanding of when C5 students develop mindsets on leadership development and emotional control. These noncognitive factors were fairly stable over the three time periods in this study. Due to the nature of the C5 curriculum, leadership mindsets were likely established early on. Emotional control and other self-regulatory behaviors can change—as the interviews revealed—but tend to improve gradually as youth progress through adolescence (cf. Crosnoe & Johnson, 2011; Duckworth & Gross, 2014; Lerner, 2009; Perry & Pauletti, 2011). Perhaps the time frame of this study was too short.

Limitations

This study had several limitations. First, the unique nature of C5 and NOLS makes it difficult to generalize to a broader population of students. Second, the study did not employ a true experimental design, limiting the interpretation of findings. Third, the quantitative measures used were largely self-perception measures. Future research may want to consider adding performance measures of some kind. Fourth, mindset measures showed considerable ceiling effects, limiting the ability to identify change, and the measures themselves had low alphas, which could be corrected by increasing the number of items. Finally, there were only 20 expedition groups in the sample, which made group level analysis difficult in MLM. A larger number of expedition groups may have revealed more group level differences (Raudenbush & Bryk, 2002; Singer & Willett, 2003).

Conclusion

College access programs help students prepare for college in many ways, from providing academic support and information about college to offering experiential opportunities that foster the development important noncognitive factors. This study sought to gain greater insight as to how college access programs can use OAE to complement other programming and support a suite of noncognitive factors like self-efficacy, sense of belonging, and mindsets toward ability and potential. The intense and dynamic nature of the OAE experience was related to increases in self-efficacy beliefs toward dealing with challenge and using help-seeking behavior directly at course end. However, gains regressed to precourse levels 2-4 months out. Findings from this study exemplify the challenges in measuring and understanding the development of noncognitive factors. It is clear that context and continuity matter. Self-efficacy beliefs are strongly influenced by contextual factors, even those beliefs thought to be generalizable. For the students in this study, the C5 community and small group nature of their OAE experience encouraged help-seeking behavior and the social support needed to persevere through physical and emotional challenges. Unfortunately, many students return to learning environments that cannot replicate or replace the social structure of the college access program making for a very different application environment. As programs look to find ways to develop noncognitive factors, OAE remains an intriguing option though outcomes should be supported through regular reinforcement and follow-up.

While findings from this study were mixed, it is clear that college access programs can promote a sense of belonging among participants and have lasting impacts

on student development. These benefits are largely due to the OST experiences embedded in programming that allow students to build interpersonal and intrapersonal competencies and beliefs in ways that classroom learning cannot replicate. It may be best to understand college access programs holistically, in that the effects of participation become more apparent over years, not weeks or months. Though resource intensive, longitudinal research that follows students over several years will allow for a deeper understanding of how the various components of college access programs influence the developmental trajectories of students.

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CHAPTER 5

SUMMARY

This dissertation presented three distinct but interconnected research studies that examined the relationship between outdoor adventure education (OAE) experiences and the development of key noncognitive factors associated with college readiness. Out-of-school-time (OST) experiences including OAE provide unique opportunities for students to build self-efficacy and self-confidence, alter their beliefs about themselves and their potential, and make powerful social connections in a nonacademic setting (cf. Durlak, Weissberg, & Pachan, 2010; Pellegrino & Hilton, 2012). Unfortunately, access to high quality OST experiences is often dictated by available resources and those from low income households now have less access to these opportunities than at any other time in the last 40 years (Putnam, Frederick, & Snellman, 2012; Putnam, 2015). This dissertation looked at two very different college preparatory environments that use OAE to develop the skills, beliefs, attitudes, and behaviors associated with college readiness. At the center of Chapter 2 was the Archer School for Girls, an independent all-girls school in Los Angeles with considerable financial resources where the majority of the students come from high-income homes. Chapters 3 and 4 involved students from low socioeconomic backgrounds involved in a college access program. The studies presented in this dissertation make the case that OAE—with its inherent challenges and small group

environment—can support the development of noncognitive factors associated with student success. Additionally, findings show the importance of a supportive application environment in the retention and continued development of noncognitive factors.

The article, "Complementing Classroom Learning through Outdoor Adventure Education: Out-of-School-Time Experiences that Make a Real Difference," presented in Chapter 2 examined how one school is integrating OAE experiences into a broader school-wide curriculum. The Archer School for Girls uses weeklong OAE experiences in 7th-, 9th-, and 11th-grade to bring together students in each class, break social cliques, and give students the chance to practice leadership skills in a dynamic environment and test personal limits. This qualitative study found that these experiences led to greater social connectedness among students, increased self-efficacy in leadership, and allowed students to reevaluate their beliefs about their personal potential, capabilities, and values resulting in a recalibrated sense of self. By embarking on several OAE experiences as a cohort and returning to the same school, students received additional benefits. New and transformed relationships continued at school. At the very least, students got to know more of their peers with whom there may have been little previous interaction. Students were also able to draw on these common experiences to build a school-wide identity where there are shared narratives of challenge, social bonding, and accomplishment. The common application environment also allowed students to practice leadership in the classroom with peers that share similar lessons and leadership language. Faculty could revisit and reinforce leadership curricula. The continuity from the OAE experience to the school allowed Archer to leverage the benefits of a backcountry leadership expedition to student development while aiding the transfer of learning and relationships to a

traditional classroom context.

Chapters 3 and 4 presented findings from a longitudinal mixed methods study involving students from C5 Youth Programs. Building on findings from Chapter 2, it measured noncognitive factors related to OAE outcomes that also support college readiness. Chapter 3, "Bridging the Opportunity Gap: College Access Programs and Outdoor Adventure Education," examined how participating in a weeklong OAE trip influenced self-efficacy for dealing with challenge, self-efficacy for using help-seeking behavior, mindsets toward leadership development, mindsets toward emotional control, and sense of belonging at C5 and at school. Quantitative measures found increases in self-efficacy for dealing with challenge and self-efficacy for using help-seeking behavior, with participation in the weeklong OAE experience accounting for 25% and 16% of the variance in self-report measures. It also found that student sense of belonging to C5 was higher than sense of belonging to school. Additionally, data analysis showed a small increase in sense of belonging to school but the amount of variance explained was very small (4%).

Qualitative interviews helped explain the quantitative results of Chapter 3. The OAE experience served as a culminating performance for the first half of the C5 experience. It allowed students to practice the leadership skills central to the C5 curriculum in a supportive setting. The OAE experience tested students physically and emotionally, encouraging them to draw on inner resources and the support of their peers. Students learned that asking for help was not a sign of weakness and that they could adapt to an unfamiliar environment—two important lessons that could also apply to the transition to college. Interviews also revealed that mindsets toward leadership

development were fairly well-established. C5 is a program that promotes a growth mindset toward leadership and students already understand that leadership is a skill and not an innate ability. Finally, students made it clear that the C5 program plays an important role in their lives, in many ways serving as a community of like-minded students with college aspirations that may not exist at their respective schools. At C5, students share a common identity of being college bound and ready for the challenges that face many first-generation college students.

Chapter 4 was a follow-up study to that presented in Chapter 3. It sought to understand how time and change of context affected the noncognitive factors of interest months after OAE participation. It found that gains in self-efficacy regressed to precourse levels. Interviews provided evidence that context played an important part in the retention (or regression) of gains. At the end of their experience, students dispersed and did not meet up with their C5 peers until months later, limiting the opportunity to sustain relationships and reinforce changes to beliefs. Unlike students at the Archer School for Girls, C5 students were spread across several high schools. This disrupted continuity of learning from the OAE experience to school. In particular, students did not have the social structure that supported reaching out for help or the social support needed to deal with challenge. The nature of what was considered challenge also changed. During the OAE experience, the challenges were largely physical and emotional. At school, students talked about academic challenges and balancing multiple priorities.

Yet the quantitative findings at follow-up do not mean that students do not benefit from their participation in the C5 program. Indeed, when evaluating the entire C5 journey holistically, it is clear that involvement in the program is making an impact, albeit

incrementally. Students talked about how C5 changed them, how it made them think differently, how they view C5 as family. Longitudinal research over a longer time frame would likely reveal gradual changes to noncognitive factors and identify when these changes occur. This aligns with the systems theory concept of developmental cascades, where significant changes to student trajectories depend on a series of quality experiences (Masten & Cicchetti, 2010). For C5 students, OAE is just one of those quality experiences.

For Archer students, their OAE experiences are also part of a system of developmental cascades. The OAE experiences complement and augment traditional classroom learning as well as the social system within Archer. To view the real impact of the OAE experiences for Archer students, it is important to examine it within the context of the "Archer experience."

If there is a common theme running through all three studies, it is the importance of context and continuity in student development. Archer demonstrates how integrating OAE into overall school curriculum can reinforce positive outcomes. Chapters 3 and 4 underscore the challenges that many college access programs like C5 face, primarily the loss of a supportive social system when students return to their respective schools. These findings align with social learning theories (cf. Bandura, 1986; Vygotsky, 1930/1978). Beliefs, behaviors, and social context influence each other. Therefore, changing contexts will influence both beliefs and behaviors, as evidenced in Chapter 4.

Moving forward, the challenge for educators that use OAE will be to find ways to build in continuity and maintain positive social contexts following the outdoor experience. Chapter 4 highlights many of the issues related to gauging transfer of

learning in OAE when the application environment is vastly different than the learning environment. Brown (2010) argues that transfer of learning is best facilitated when OAE participants have a shared application context. The use of OAE by the Archer School for Girls shows positive school outcomes that support Brown's argument. The use of OAE by college access programs like C5 shows promise but clearly more can be done to support and reinforce learning once the experience is over—whether that is more frequent contact among participants or better integration of college access programming within schools.

These studies also present an opportunity for OAE organizations like the National Outdoor Leadership School (NOLS), the organization that ran the expeditions for Archer and C5. Partnering with schools and college access programs is one way to support lasting outcomes of participation. Often, when students come together for the specific purpose of participating in an OAE course, it is difficult to carry over positive outcomes to other application environments. Strong social bonds dissipate as participants go to their respective homes. Key insights and important lessons may not be shared with colleagues at school or work. While there is qualitative evidence that certain outcomes transfer (Sibthorp, Furman, Paisley, & Gookin, 2008), quantitative evidence is mixed (cf. Brown, 2010; Furman & Sibthorp, 2014). Working with intact groups may better support OAE outcomes.

The findings from the three studies presented in this dissertation contribute to the conversation about the importance of OST experiences like OAE and their potential contribution to the development of key noncognitive factors associated with student success. Intrinsically, those that have been part of a team, club, or theater group or have

had a life changing experience on an OAE course know these activities are important to personal development. Moving forward, it will be necessary to provide more evidence as to the lasting value of these experiences. The alternative is that quality OST experiences become a luxury for those with the resources rather than part of a well-rounded education available to all.

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APPENDIX A

PARENT CONSENT AND STUDENT ASSENT FORMS

Parental Permission and Authorization Document

BACKGROUND

Your child is being asked to participate in a research study that is taking place at the Archer School for Girls during the 2014-15 academic year. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you will allow your child to take part in this research study.

The purpose of this study is to learn more about the 7th, 9th, and 11th grade "Archer Week" backpacking expeditions and the outcomes of these experiences. The researchers are particularly interested in exploring how these experiences relate to the development of particular skills that support learning and personal growth in students. This study will be conducted by a PhD graduate student from the University of Utah's Department of Parks, Recreation and Tourism with support from faculty and staff at the Archer School for Girls.

STUDY PROCEDURES

This study will take place over a 1-2 week period during the 2014-2015 academic year. Your child may be selected from a pool of students to participate in a one-on-one interview with a research team member. The interview will last between 20 and 30 minutes. Interviews will be conducted during the school day and researchers will work with Archer faculty to schedule interviews at times that are convenient and appropriate for the student and their teachers. The purpose of these interviews is to learn about students' Archer Week experiences and what they believe are the most valuable lessons. In addition, the interview will explore how lessons and experiences from Archer Week are used back at school.

RISKS

The foreseeable risks related to participation in this study are minimal. Students will be talking about their experiences related to Archer Week backpacking expeditions and the Archer School regularly offers students the opportunity to discuss insights and opinions. Students may feel uncomfortable talking about personal information related to Archer Week experiences. These risks are similar to those experienced when discussing personal information with others. If the student is upset at any point during the interview, they can tell the researcher, and he/she will tell the student about resources available to help.

BENEFITS

We cannot promise any direct benefit to your child for taking part in this study. However, results from the study may help improve Archer Week experiences in the future. The researchers hope that this study will help educators understand how unique shared experiences like Archer Week can support learning and personal growth.

CONFIDENTIALITY

All of your child's information will be kept confidential. Your child's name will be kept with interview responses to ensure accuracy and consistency during transcription of the audio interview. In publications, your child's name will not be used and every effort will be made to

remove any identifiable characteristics of interviewees described in any published piece. All study information will be stored in a locked filing cabinet or on a password protected computer located in the researcher's work space. Only the researcher and members of his/her study team will have access to this information.

However, if your child discloses actual or suspected abuse, neglect, or exploitation of a child, or disabled or elderly adult, the researcher or any member of the study staff must, and will, report that information to Child Protective Services, Adult Protective Services, or the nearest law enforcement agency to the extent required by law.

PERSON TO CONTACT
If you have questions, complaints or concerns about this study, you can contact Dan Richmond at (612) 296-9849. If you feel your child has been harmed as a result of participation please call Gretchen Warner, Dean of Students for Archer School for Girls, at (310) 873-7023 or Stephanie Ferri, Director of Outdoor Education for Archer School for Girls (310) 873-7043.

VOLUNTARY PARTICIPATION
Research studies include only people who choose to take part. You can tell us that you don't want your child to be in this study. Your child can start the study and then choose to stop the study later. This will not affect your relationship with the investigator or the Archer School for Girls.

COSTS AND COMPENSATION TO PARTICIPANTS
There are no costs for participation. There is no compensation for participating in this study.

CONSENT
By signing this consent form, I confirm I have read the information in this parental permission form and have had the opportunity to ask questions. I will be given a signed copy of this parental permission form. I voluntarily agree to allow my child to take part in this study.

NOTE: You can complete this form or simply reply to sferri@archer.org with the following statement:

I consent to allow my child to participate in this study.
Name of parent: (insert here)
Name of student: (insert here)

_____
Child's Name

_____
Parent/Guardian's Name

_____ _____
Parent/Guardian's Signature Date

_____
Relationship to Child

Assent to Participate in a Research Study

Who are you and what are we doing?

I am a PhD graduate student from the University of Utah. I would like to ask you if you want participate in a research study. A research study is a way to find out new information about something. In this study, we will discuss your Arrow Week backpacking trip to find out more about the experience and what you learned.

Why are we asking you to be in this research study?

In this study, I am trying to learn how experiences like Arrow Week backpacking trips can support learning and personal growth in students. I want you to be in this study because you have participated in an Archer Week backpacking experience.

What happens in the research study?

If you decide to be in this research study and your parent or guardian agrees, you will meet with me for approximately 20 to 30 minutes to discuss your experience on an Arrow Week backpacking trip, what you learned, and how the lessons and experiences from Arrow Week are used back at school.

Will any part of the research study hurt you?

Participating in this study will not hurt you in any way. Your teachers and advisors from Arrow Week and I are available to answer any questions you might have.

Will the research study help you or anyone else?

We do not know for sure if being in this study will help you. However, the study is an opportunity to share your opinions and insights regarding Arrow Week trips. This information may help improve Arrow Week in the future.

Who will see the information about you?

Your personal information will be kept confidential and your comments will be

anonymous.

What if you have any questions about the research study?

Contact Dan Richmond at 612-296-9849 or dan.richmond@utah.edu. It is okay to ask questions. If you don't understand something, you can ask me. I want you to ask questions now or anytime you think of them, even after the interview.

Do you have to be in the research study?

You do not have to be in this study if you don't want to. Being in this study is up to you. No one will be upset if you don't want to do it. Even if you say yes now, you can change your mind later and tell us you want to stop.

We will also ask your parent or guardian to give their permission for you to be in this study. But even if your parent or guardian says “yes” you can still decide not to be in the research study.

Agreeing to be in the study

I was able to ask questions about this study. Signing my name at the bottom means that I agree to be in this study. My parent or guardian and I will be given a copy of this form after I have signed it.

Printed Name	
Sign your name on this line	Date
Printed Name of Person Obtaining Assent	
Signature of Person Obtaining Assent	Date

APPENDIX B

INTERVIEW PROTOCOLS

SAMPLE INTERVIEW PROTOCOL

Overview

Location: Conference room at the Archer School for Girls.
Schedule: The interviews will be scheduled in 30-minute increments based on student and faculty availability.
Documentation: Interviews will be recorded using a digital audio recorder. The interviewer will supplement the audio recordings with notes taken during the interview.

Interview Schedule for Students

Opening

- Basic introduction to establish rapport: Hello, my name is_____ and I am a student from the University of Utah in Salt Lake City. Thanks for talking to me about Arrow Week.
- Purpose/Motivation: I am trying to learn more about these backpacking trips and how they relate to the experience of being a student at Archer. What we learn may also be used to improve Arrow Week in the future. Your responses will be kept confidential and I will not identify you by name in any public forum and efforts will be made to preserve your anonymity. We plan to pull together all of the student responses and maybe pull out a few quotes. Only my classmates and research partners will have access to any of the detailed interview information. Is it okay if I ask you a few questions about Arrow Week?
- Timeline: Our conversation should last about 20 minutes or so and no longer than a half hour. Do you mind if I record our interview so that I can remember what we discussed? Would you like to get started?

Questions
(see following pages)

Closing

- Thank you for your time. I really appreciate your thoughts on Arrow Week.
- We'll be pulling together information for this project over the next few weeks. I'll make sure that your teachers at Archer share some of what we find.

Interview Schedule for Faculty

Opening

- Basic introduction to establish rapport: Hello, my name is_____ and I am graduate student from the University of Utah in Salt Lake City. Thanks for being a part of this study on the Arrow Week. I'm looking forward to our conversation.
- Purpose: The reason we are conducting this study is to get an idea of what students learn on Arrow Week and how these lessons carry over to school. In our conversation, I am particularly interested in your perspective on the value of

Arrow Week. Your responses will be kept confidential and I will not identify you in any publication or presentation. The information gathered here will be aggregated and we may use some quotes but again, you will not be explicitly identified. Only my classmates and research partners will have access to any of the detailed interview information.

- Motivation: From a research perspective, we hope to learn more about how schools can use experiences like Arrow Week backpacking trips to support student learning. What we learn may also be used to improve Arrow Week in the future.
- Timeline/Recording: Our conversation should last about 20 minutes or so and no longer than a half hour. I'll be recording the interview so I can transcribe it at a later date. Would you like to get started?

Questions
(see following pages)

Closing

- Thank you for your time. I really appreciate your thoughts on Arrow Week.
- We'll be pulling together information for this project over the next few weeks. I'll make sure that we share our findings with you and other faculty.

Questions for a Semistructured Interview with Students

- Can you tell me about your latest Arrow Week backpacking trip?
    - *Follow-up Questions: What were some highlights from the trip? What stands out as something memorable? What were some challenges from the trip? How did you overcome those challenges? What were the most valuable lessons you learned?*

- What were they trying to teach you on Arrow Week?
    - *Follow-up Questions: Why do you think these lessons are valuable? Do you use any of these lessons back at school? If so, how?*
    - *Leadership seems to be a theme for Arrow Week. What did you learn about leadership? How were you able to practice leadership on your trip?*

- Can you tell me what it was like to live and travel with a group of your peers for a week?
    - *Follow-up Questions: Did your relationships change with your travel group? How did your relationships change? How did this affect your relationships back at school?*

- How do you think Arrow Week affects students at Archer?
    - *Follow-Up: Is this true for you, too? How do students use lessons from Arrow Week back at school? How do teachers use lessons back at school? Do you think you changed as a person as a result of Archer Week? If so, how?*

- What do you like the most about Arrow Week?
- Would you change anything about Arrow Week? If so, what would you change?
- *(For students who have gone on 2 or more Arrow Week trips): How has the Arrow Week been different from 7th to 9th or 9th to 11th grade? What did you learn on your previous trip(s) that you were able to use on this last backpacking trip? What did your peers think was harder or easier about going on a 2nd (or 3rd) backpacking trip with Archer?*

- What do you think were the most valuable lessons?

- Is there anything else you would like to tell me about Arrow Week

Questions from a Semistructured Interview with Faculty

- Can you tell me about your latest Arrow Week backpacking trip?
    - *Follow-up Questions: What were some highlights from the trip? What stands out as something memorable? What were some challenges from the trip? What were some of the most valuable lessons you observed?*

- What are you trying to teach students on Arrow Week? What do you think were the most valuable lessons students learned?
    - *Follow-up Questions: How do teachers talk about lessons from Arrow Week back in school? How do you think the lessons transfer?*
    - *Leadership seems to be a theme for Arrow Week. What was taught about leadership? How were students able to practice leadership on your trip? Have you used any of the leadership curriculum back at school in your classes?*

- What was it like to live and travel with a group of your students for a week?
    - *Follow-up Questions:* What did you learn from traveling with students as a chaperone? After the trip, how are your relationships with the students different?

- Earlier you spoke about _____being a challenge, how did students overcome this challenge?
    - *Follow-up Questions: How did students overcome those challenges? How did you overcome those challenges?*

- How do you think Arrow Week affects the school culture at Archer?

- How do you think Arrow Week affects the student experience of an Archer student?

- Do you think these outdoor trips support student learning and personal growth? If so, how?

- Did you learn anything new about your students during Archer Week? If so, what?

- What do you like the most about Arrow Week?

- What would you change about Arrow Week to improve the experience for students?

- (For faculty who have gone on 2 or more Arrow Week trips): How has the Arrow Week been different from 7th to 9th or 9th to 11th grade trips? Explain how you think these experiences build on each other.

- Is there anything else you would like to tell me about Arrow Week?

SAMPLE INTERVIEW PROTOCOL

Overview

Location: Room at NOLS basecamp or C5 local facility.
Schedule: The interviews will be scheduled in 30-minute increments based on student and faculty availability.
Documentation: Interviews will be recorded using a digital audio recorder. The interviewer will supplement the audio recordings with notes taken during the interview.

Interview Schedule for Students

Opening

- Basic introduction to establish rapport: Hello, my name is_____ and I am a student from the University of Utah in Salt Lake City. Thanks for talking to me.
- Purpose/Motivation: I am trying to learn more about C5 Bridges trips and how they relate to the experience of being a student. What we learn may also be used to improve C5 in the future. Is it okay if I ask you a few questions about your C5 Bridges experience?
- Timeline: Our conversation should last about 20 minutes or so and no longer than a half hour. Do you mind if I record our interview so that I can remember what we discussed? Would you like to get started?

Questions for a Semistructured Interview with C5 Students

- Tell me about your Bridges backpacking trip?
    - *Follow-up Questions: What were some highlights from the trip? What stands out as something memorable? What were some challenges from the trip? How did you overcome those challenges? What were the most valuable lessons you learned as result?*

- What do you think they were they trying to teach you on the Bridges trip?
    - *Follow-up Questions: Why do you think these lessons are valuable? Do you use any of these lessons back at school? If so, how?*
    - *Leadership seems to be a theme for the Bridges trip. What did you learn about leadership? How were you able to practice leadership on your trip?*

- Can you tell me what it was like to live and travel with a group of your peers for a week?
    - *Follow-up Questions: Did your relationships change within your travel group? How did your relationships change?*

- How do you think the Bridges trip affects students at C5?

- *Follow-Up: Is this true for you, too? How do students use lessons from the Bridges back at school?*

- Did you ever feel frustrated or upset on your trip? If so, how did you manage these feelings?

- Do you think you changed as a person as a result of the Bridges backpacking trip? If so, how?

- When you think back on your trip, what stands out as something you may use in your life?

- Tell me a little bit about your involvement in C5.
  - *Follow-Up: How does it differ from your experiences at your school? How do your relationships differ between people you know at C5 and people you know at school? What do you think you are getting out of C5 that you can't get from your school and other opportunities in your community?*

- Is there anything else you would like to tell me about the Bridges trip?

Closing

- Thank you for your time. I really appreciate your thoughts on your C5 experiences.
- We'll be pulling together information for this project over the next few weeks. I'll make sure that your advisors at C5 share some of what we find.

APPENDIX C

NONCOGNITIVE FACTORS MEASUREMENT INSTRUMENT

TODAY'S DATE **(Month/Day/Year): ____/____/____**

This questionnaire is designed to help C5 and NOLS understand more about its students. **The answers to these questions are completely confidential** and will not be shared with other students or the instructors on your course. Please answer each question as honestly as you can.

Your Date of Birth (Month/Day/Year): ____/____/____
(we need your birthdate to match your before/after surveys)

Gender: ○ Female ○ Male ○ Other

Your C5 Location:
○ C5 Northeast ○ C5 Georgia
○ C5 Texas ○ C5 Los Angeles

Where did you go on your C5 trip?
○ Washington ○ Idaho ○ Wyoming ○ New York (Adirondacks)
○ Other _____

We would like to ask you some questions about how you view leadership and emotion. Although some of the following questions may seem similar to one another, **they differ in important ways**. For each item, please answer using the following scale:

1----------	2----------	3----------	4----------	5----------	6----------	7----------	8
Strongly Disagree	Mostly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Mostly Agree	Strongly Agree

1.	Everyone can learn to become a leader.	1	2	3	4	5	6	7	8
2.	You have a certain amount of leadership ability, and **you *can't* r/eally do much to change it.**	1	2	3	4	5	6	7	8
3.	If they want to, people can change their leadership ability.	1	2	3	4	5	6	7	8
4.	The truth is, people have ***very little* control over their leadership ability.**	1	2	3	4	5	6	7	8
5.	No matter how much leadership ability you have, you can always change it quite a bit	1	2	3	4	5	6	7	8
6.	You can learn new things, **but you *can't* really change your basic leadership ability.**	1	2	3	4	5	6	7	8
7.	You can change even your basic leadership ability considerably.	1	2	3	4	5	6	7	8
8.	Your leadership ability is something very basic about you ***that can't change very much.***	1	2	3	4	5	6	7	8
9.	Everyone can learn to control their emotions.	1	2	3	4	5	6	7	8
10.	You have a certain amount of control over your emotions, and **you *can't* really do much to change it.**	1	2	3	4	5	6	7	8
11.	If they want to, people can change the emotions that they have.	1	2	3	4	5	6	7	8
12.	The truth is, people have ***very little* control over their emotions.**	1	2	3	4	5	6	7	8
13.	No matter how much emotional control you have, you can always change it quite a bit	1	2	3	4	5	6	7	8
14.	You can learn new things, **but you *can't* really change your ability to control your emotions.**	1	2	3	4	5	6	7	8
15.	You can change even your basic ability to control your emotions.	1	2	3	4	5	6	7	8
16.	Your ability to control your emotions is something very basic about ***you that can't change very much.***	1	2	3	4	5	6	7	8

The following questions ask you how well you feel you belong **at your schoo**l. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1----------	2----------	3----------	4----------	5----------	6----------	7----------	8
Totally False	Mostly Not True	Somewhat Not True	Slightly Not True	Slightly True	Somewhat True	Mostly True	Totally True

	About your school…								
17.	I feel like a real part of my school.	1	2	3	4	5	6	7	8
18.	**It is hard for people like me to be accepted at my school.**	1	2	3	4	5	6	7	8
19.	Teachers at my school respect me.	1	2	3	4	5	6	7	8
20.	**I wish I was in a different school.**	1	2	3	4	5	6	7	8
21.	People at my school notice when I am good at something.	1	2	3	4	5	6	7	8
22.	**Sometimes I feel like I don't belong at my school.**	1	2	3	4	5	6	7	8
23.	There is at least one teacher or adult I can talk to in my school if I have a problem.	1	2	3	4	5	6	7	8

The following questions ask you how well you feel you belong **at C5.** Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1---------- Totally False	2---------- Mostly Not True	3---------- Somewhat Not True	4---------- Slightly Not True	5---------- Slightly True	6---------- Somewhat True	7---------- Mostly True	8 Totally True

About C5…								
24. I feel like a real part of C5.	1	2	3	4	5	6	7	8
25. **It is hard for people like me to be accepted at C5.**	1	2	3	4	5	6	7	8
26. Instructors at C5 respect me.	1	2	3	4	5	6	7	8
27. **I wish I was in a different program other than C5.**	1	2	3	4	5	6	7	8
28. People at C5 notice when I am good at something.	1	2	3	4	5	6	7	8
29. **Sometimes I feel like I don't belong at C5.**	1	2	3	4	5	6	7	8
30. There is at least one instructor or adult I can talk to at C5 if I have a problem.	1	2	3	4	5	6	7	8

Think of an extremely challenging situation. *When you are in a situation that may seem overwhelming, or when you are having problems, how confident or certain are you that you can do the following? Be honest in your answers as there are no right or wrong answers.*

Rate your degree of confidence by recording a number from 0 to 10 using the scale given below. Circle your response for each statement.

0 *I cannot do at all*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10* *I am highly confident I can do it*

31. Break a difficult problem down into smaller parts.	0	1	2	3	4	5	6	7	8	9	10
32. Identify what can be changed and what cannot be changed.	0	1	2	3	4	5	6	7	8	9	10
33. Make a plan of action and follow it when confronted with a problem.	0	1	2	3	4	5	6	7	8	9	10
34. Leave options open when things get stressful.	0	1	2	3	4	5	6	7	8	9	10
35. Think about one part of the problem at a time.	0	1	2	3	4	5	6	7	8	9	10
36. Resist the temptation to 'just get it done' without thinking it through.	0	1	2	3	4	5	6	7	8	9	10
37. Maintain a positive attitude when one or more of the things I try end up not working.	0	1	2	3	4	5	6	7	8	9	10
38. Keep working on the problem, even if I don't know how it will turn out.	0	1	2	3	4	5	6	7	8	9	10
39. Avoid quitting when a task seems nearly impossible, even though you are pretty sure there is a solution.	0	1	2	3	4	5	6	7	8	9	10
40. Express my opinions when others disagree with me.	0	1	2	3	4	5	6	7	8	9	10
41. When I am struggling with something, I can stop myself from being upset by unpleasant thoughts.	0	1	2	3	4	5	6	7	8	9	10
42. Get help from peers (other kids my age) when I am struggling with something that seems really hard.	0	1	2	3	4	5	6	7	8	9	10
43. Get emotional support from peers (other kids my age) when I am struggling with a personal problem.	0	1	2	3	4	5	6	7	8	9	10
44. Get in touch with peers (other kids my age) when I feel overwhelmed and want to quit.	0	1	2	3	4	5	6	7	8	9	10
45. Get help from teachers, instructors, counselors or mentors when I am struggling with something that seems really hard.	0	1	2	3	4	5	6	7	8	9	10
46. Get emotional support from teachers, instructors, counselors or mentors when I am struggling with a personal problem.	0	1	2	3	4	5	6	7	8	9	10
47. Go to teachers, instructors, counselors or mentors when I feel overwhelmed with something and want to quit.	0	1	2	3	4	5	6	7	8	9	10